RESEARCH METHODOLOGY

An Introduction

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RESEARCH METHODOLOGY

An Introduction

Objectives

1)Meaning of Research
2)Objectives of Research
3)Motivation in Research
4)Types of Research
5)Research Approaches
6)Significance of Research
7)Research Methods versus Methodology
8)Research and Scientific Method
9)Importance of Knowing How Research is Done
10)Research Process
11)Criteria of Good Research
12)Problems Encountered by Researchers in India (Self Study)

Meaning of Research

- Research is composed of two terms combined:
  - a prefix **re**
  - a verb **search**
- *Re* means again, a new, over again

- *Search* means to examine closely and carefully, to test and try, to probe

- The two words form a noun to describe *a careful and systematic study in some field of knowledge, undertaken to establish facts or principles*.

- *Research is an organized and systematic way of finding answers to questions*

Meaning of Research

- A careful investigation or inquiry specially through search for new facts in any branch of knowledge
- Redman and Mory define research as a "*systematized effort to gain new knowledge*."
- A movement from the known to the unknown
- It is voyage of discovery

Meaning of Research

- **Clifford Woody -**

1) *Defining and redefining problems,*
2) *formulating hypothesis or suggested solutions;*
3) *collecting, organising and evaluating data;*
4) *making deductions and reaching conclusions;*
5) *carefully testing the conclusions to determine whether they fit the formulating hypothesis.*

- **D. Slesinger and M. Stephenson in the Encyclopaedia of Social Sciences** -
- *"The manipulation of things, concepts or symbols for the purpose of generalising to extend, correct or verify knowledge, whether that knowledge aids in construction of theory or in the practice of an art."*

Objectives of Research

- To gain familiarity with a phenomenon or to achieve new insights into it.
- To portray accurately the characteristics of a particular individual, situation or a group.
- To determine the frequency with which something occurs or with which it is associated with something else.
- To test a hypothesis of a causal relationship between variables.

Motivation for Research

1) Desire to get a research degree along with its consequential benefits;
2) Desire to face the challenge in solving the unsolved problems, i.e., concern over practical problems initiates research;
3) Desire to get intellectual joy of doing some creative work;
4) Desire to be of service to society;
5) Desire to get respectability

Types of Research

1) Descriptive vs Analytical
2) Applied vs Fundamental
3) Quantitative vs Qualitative
4) Conceptual vs Empirical

1) Descriptive Research Vs Analytical Research

Major purpose of descriptive research is description of the state of affairs as it exists at present (*ex post facto Research*)

Characteristic: The researcher has no control over the variables - he can only report what has happened, or what is happening;

e.g.: frequency of shopping, preferences of people

Methods used: Comparative and Correlation.

In analytical research, the researcher has to use facts or information already available and analyze these to make a critical evaluation of the material.

2) Applied Vs Fundamental Research

Applied Research

- Immediate problem facing a society or an industrial business organization aimed at conclusions
- Example : Market research, design, safety, health, pollution, societal, environmental, industrial, pharmaceutical, etc.

Fundamental Research

- Mainly concerned with generalizations and with the formulation of a theory.

- Research concerning some natural phenomenon or relating to pure mathematics are examples of fundamental research. Similarly, research studies, concerning human behaviour carried on with a view to make generalisations about human behaviour, are also examples of fundamental research.

3) Quantitative Vs Qualitative Research

Quantitative Research

- Based on the measurement of quantity or amount
- Controlled, rather easy to carry-out
- Objective and repeatable
- Easy to draw conclusions and decisions

Qualitative Research

- is concerned with qualitative phenomenon, i.e., involving quality or kind
- aim is to discover the underlying motives of human behaviour; attitude or opinion research (how people feel or think about a particular subject or institution).
- difficult job; should seek guidance from experimental psychologists.

4) Conceptual Vs Empirical Research

Conceptual Research

- Related to some abstract idea(s) or theory; generally used by philosophers and
- thinkers to develop new concepts or to re-interpret existing ones

Empirical Research

- Relies on experience or observation alone, without due regard for system and theory. It is data-based research, coming up with conclusions which are capable of being verified by observation or experiment.

- Characterised by the experimenter's control over the variables under study and his deliberate manipulation of one of them to study its effects.

  Evidence gathered through experiments or empirical studies is today considered to be the most powerful support possible for a given hypothesis.

4) Conceptual Vs Empirical Research

Conceptual Research

The most famous example of a conceptual research is Sir Issac Newton. He observed his surroundings to conceptualize and develop theories about gravitation and motion. Einstein is widely known and appreciated for his work on conceptual research.

Empirical Research

- https://edisonian.weebly.com/the-edisonian-approach.html

- Edison was,not the first inventor to stumble upon the idea of an incandescent bulb. Others many years before tried and failed. So what did Thomas Edison do that others hadn't thought of?

  The Edisonian Approach was Edison's way of inventing. Never having been fascinated by math, Edison used this system of trial and error, or hunt and search, rather than theoretical experimentation. But hunt and search was only the last resort for this process.

4) Conceptual Vs Empirical Research

Empirical Research

- https://edisonian.weebly.com/the-edisonian-approach.html

Edison took theories that already existed and made educated guesses on what would become a successful end product. The theories and methods that he bounced off of were usually those of the failed inventors before him. Edison said: "When I want to discover something, I begin by reading up everything that has been done along that line in the past -- that's what all these books in the library are for.

Other Types of Research

1. One Time Research
2. Longitudinal Research
3. Field Research
4. Laboratory Research
5. Simulation Research
6. Clinical Research
7. Diagnostic Research
8. Exploratory Research
9. Historical Research
10. Conclusion Oriented Research
11. Decision Oriented Research

Research Approaches

Two basic approaches to research, viz., **quantitative approach and the qualitative approach.**

Quantitative approach Sub-classified into

Inferential : Inferential approach to research is to form a data base from which to infer characteristics or relationships of population. This usually means survey research where a sample of population is studied (questioned or observed) to determine its characteristics, and it is then inferred that the population has the same characteristics.

Experimental : is characterised by much greater control over the research environment and in this case some variables are manipulated to observe their effect on other variables.

Simulation approaches to research : Simulation approach can also be useful in building models for understanding future conditions using artificial environment.

Research Approaches

Qualitative approach:
Research is concerned with subjective assessment of attitudes, opinions and behaviour.

Generally, the techniques of focus group interviews, projective techniques and depth interviews are used.

Significance of Research

Context of which the significance of research can well be understood:

"All progress is born of inquiry. Doubt is often better than overconfidence, for it leads to inquiry, and inquiry leads to invention".
Research inculcates scientific and inductive thinking and it promotes the development of logical habits of thinking and organization.

The increasingly complex nature of **business and government** has focused attention on the use of research in solving operational problems.
Research provides the basis for nearly all government policies in our economic system. For instance, government's budgets rest in part on an analysis of the needs and desires of the people and on the availability of revenues to meet these needs.
Also can well examine the consequences of the alternatives.

Significance of Research

Thus, in the context of government, research as a tool to economic policy has three distinct phases of operation, viz.,

(i) investigation of economic structure through continual compilation of facts;

(ii) diagnosis of events that are taking place and the analysis of the forces underlying them; and

(iii) the prognosis, i.e., the prediction of future developments.

Research has its special significance in solving various operational and planning problems of business and industry.

Operations research and market research, along with motivational research, are considered crucial and their results assist, in more than one way, in taking business decisions.

Significance of Research

Market research is the investigation of the structure and development of a market for the purpose of formulating efficient policies for purchasing, production and sales.

Operations research refers to the application of what can be termed as optimisation problems (mathematical, logical and analytical techniques to the solution of business problems) Cost minimisation or of profit maximisation .

Motivational research includes determining why people behave as they do is mainly concerned with market characteristics. In other words, it is concerned with the determination of motivations underlying the consumer (market) behaviour.

Significance of Research

Research is equally important for social scientists in studying social relationships and in seeking answers to various social problems.

It provides the intellectual satisfaction of knowing a few things just for the sake of knowledge and also has practical utility for the social scientist to know for the sake of being able to do something better or in a more efficient manner.

Significance of Research

Significance of research can also be understood keeping in view the following points:

(a) To those students who are to write a master's or Ph.D. thesis, research may mean a careerism or a way to attain a high position in the social structure;

(b) To professionals in research methodology, research may mean a source of livelihood;

(c) To philosophers and thinkers, research may mean the outlet for new ideas and insights;

(d) To literary men and women, research may mean the development of new styles and creative work;

(e) To analysts and intellectuals, research may mean the generalisations of new theories. Thus, research is the fountain of knowledge for the sake of knowledge and an important source of providing guidelines for solving different business, governmental and social problems. It is a sort of formal training which enables one to understand the new developments in one's field in a better way.

Research Method Vs Methodology

Method – Technique / method adopted to conduct Research.

Can be put in 3 groups-

- Data Collection Methods
- Statistical Techniques – establish relationships between data and unknowns
- Evaluation Methods for accuracy of results.

Methodology – Way in which research problem is solved systematically.

Research Method Vs Methodology

Research methods may be understood as all those methods/techniques that are used for conduction of research. Research methods or techniques*.

Type	*Methods*	*Techniques*
1. Library Research	(i) Analysis of historical records	Recording of notes, Content analysis, Tape and Film listening and analysis.
	(ii) Analysis of documents	Statistical compilations and manipulations, reference and abstract guides, contents analysis.
2. Field Research	(i) Non-participant direct observation	Observational behavioural scales, use of score cards, etc.
	(ii) Participant observation	Interactional recording, possible use of tape recorders, photo graphic techniques.
	(iii) Mass observation	Recording mass behaviour, interview using independent observers in public places.
	(iv) Mail questionnaire	Identification of social and economic background of respondents.
	(v) Opinionnaire	Use of attitude scales, projective techniques, use of sociometric scales.
	(vi) Personal interview	Interviewer uses a detailed schedule with open and closed questions.
	(vii) Focused interview	Interviewer focuses attention upon a given experience and its effects.
	(viii) Group interview	Small groups of respondents are interviewed simultaneously.
	(ix) Telephone survey	Used as a survey technique for information and for discerning opinion; may also be used as a follow up of questionnaire.
	(x) Case study and life history	Cross sectional collection of data for intensive analysis, longitudinal collection of data of intensive character.
3. Laboratory Research	Small group study of random behaviour, play and role analysis	Use of audio-visual recording devices, use of observers, etc.

Research Method Vs Methodology

Research methodology is a way to systematically solve the research problem. It may be understood as a science of studying how research is done scientifically.

Researchers not only need to know how to develop certain indices or tests, how to calculate the mean, the mode, the median or the standard deviation or chi-square, how to apply particular research techniques, but they also need to know which of these methods or techniques, are relevant and which are not, and what would they mean and indicate and why.

Researchers also need to understand the assumptions underlying various techniques and they need to know the criteria by which they can decide that certain techniques and procedures will be applicable to certain problems and others will not.

Research Method Vs Methodology

Research methodology

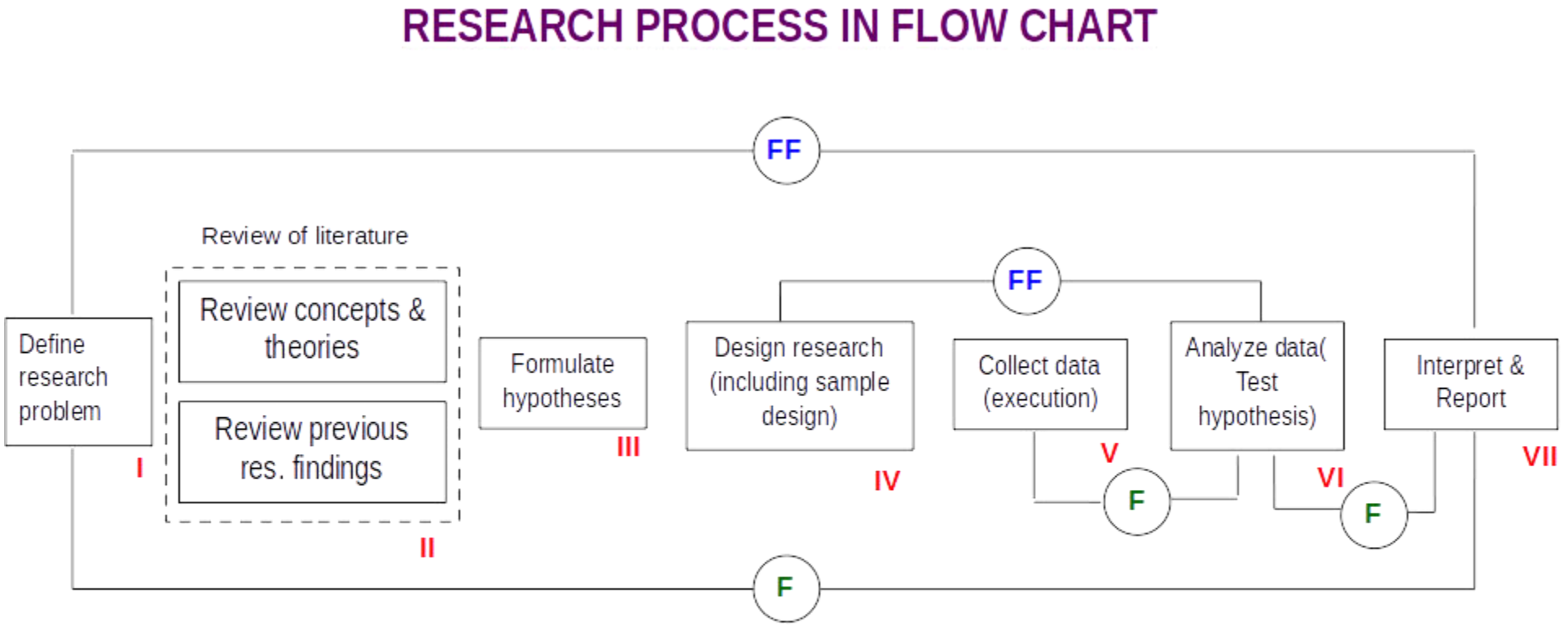
It is necessary for the researcher to design his methodology for his problem as the same may differ from problem to problem.
For example, an architect, who designs a building, has to consciously evaluate the basis of his decisions, i.e., he has to evaluate why and on what basis he selects particular size, number and location of doors, windows and ventilators, uses particular materials and not others and the like. Similarly, in research the scientist has to expose the research decisions to evaluation before they are implemented.

Research Method Vs Methodology

Research methodology

Research methodology we not only talk of the research methods but also consider the logic behind the methods we use in the context of our research study and explain why we are using a particular method or technique and why we are not using others so that research results are capable of being evaluated either by the researcher himself or by others.

Research Process

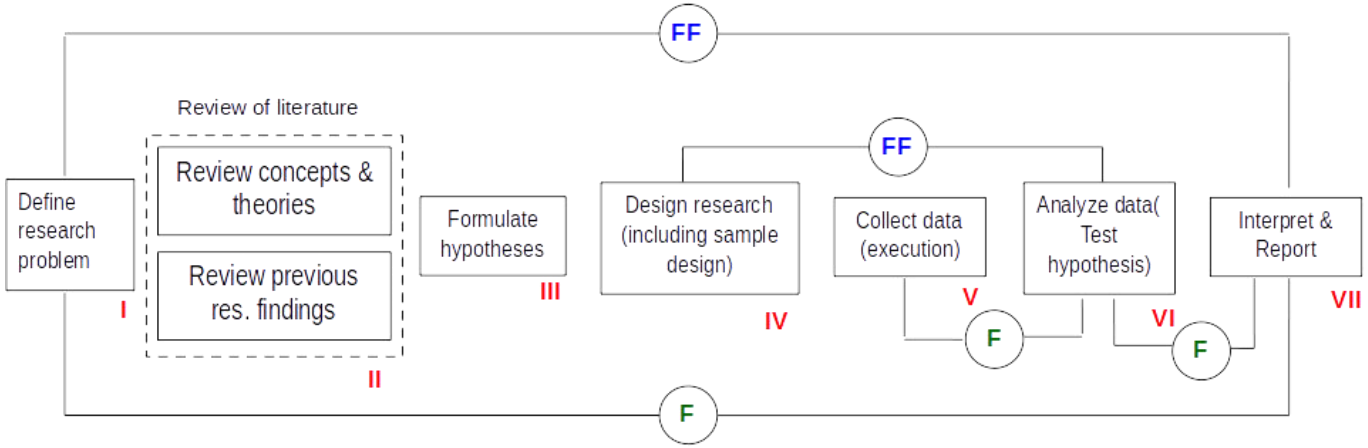


Research Process

The order/sequence concerning various steps provides a useful procedural guideline regarding the research process:

1) Formulating the research problem
2) Extensive literature survey
3) Developing the hypothesis
4) Preparing the research design
5) Determining sample design
6) Collecting the data
7) Execution of the project
8) Analysis of data
9) Hypothesis testing
10) Generalizations and interpretation, and
11) Preparation of the report or presentation of the results,
    1) i.e., formal write-up of conclusions reached.

RESEARCH PROCESS IN FLOW CHART



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RESEARCH METHODOLOGY

An Introduction to RM

Department of Computer Science and Engineering

Introduction to Research Methodology

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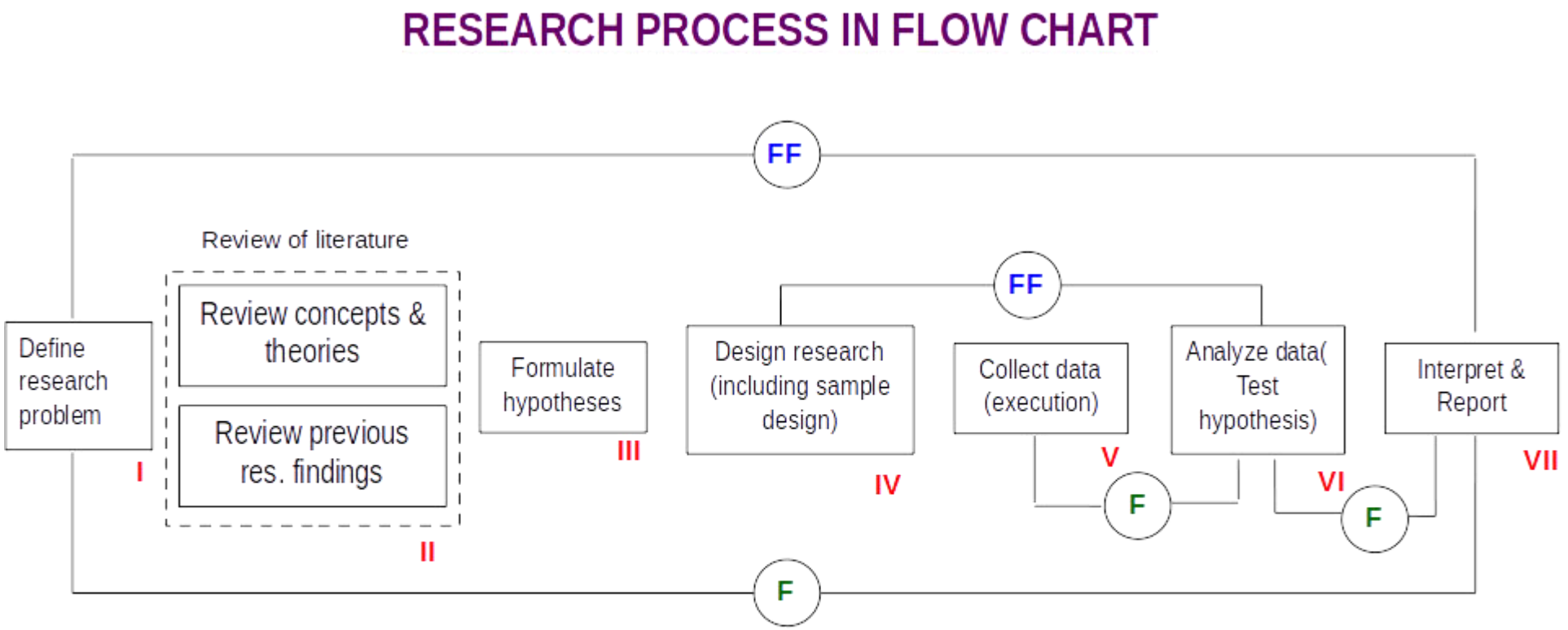
Contents:

I. Research Process
II. Criteria for Good Research

Research Process



F = feed back (Helps in controlling the sub-system to which it is transmitted

FF = feed forward (Serves the vital function of providing criteria for evaluation

Research Process

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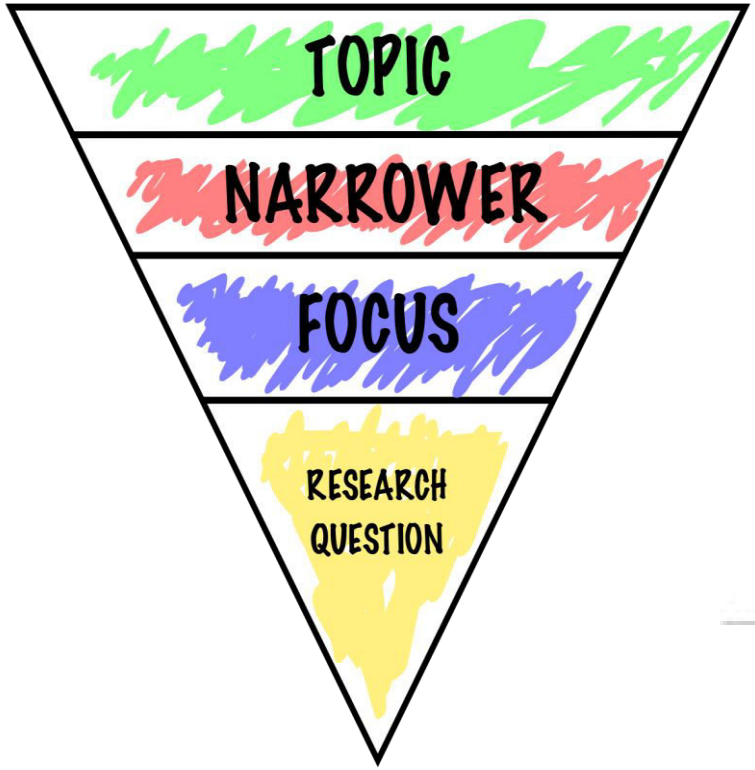
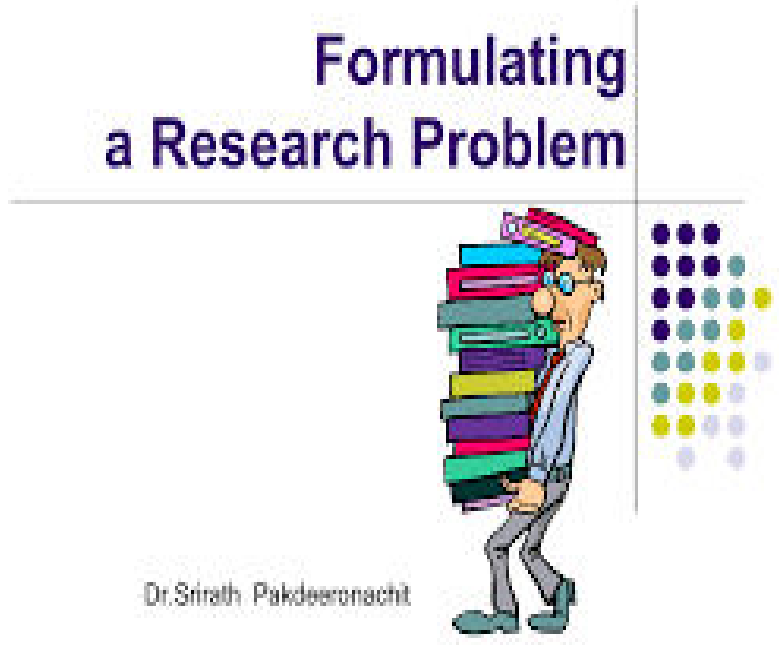
10) Generalizations and interpretation, and
11) Preparation of the report or presentation of the results, i.e., format write-up of conclusions reached.

1) Formulating Research Problem

2 steps for formulating research problem

- Understanding the research problem thoroughly
- Re-phrasing same in meaningful terms.





2) Extensive Literature Survey

- Abstracting and indexing journals and published / unpublished biographies.
- Academic journals, conference proceedings, government reports, books, etc..
- Earlier studies similar to research topic in hand.
- Good Library.
- Internet to search articles.
- Search Engines – Google / Google Scholar
- *http://scholar.google.com*

3) Development of Working Hypothesis

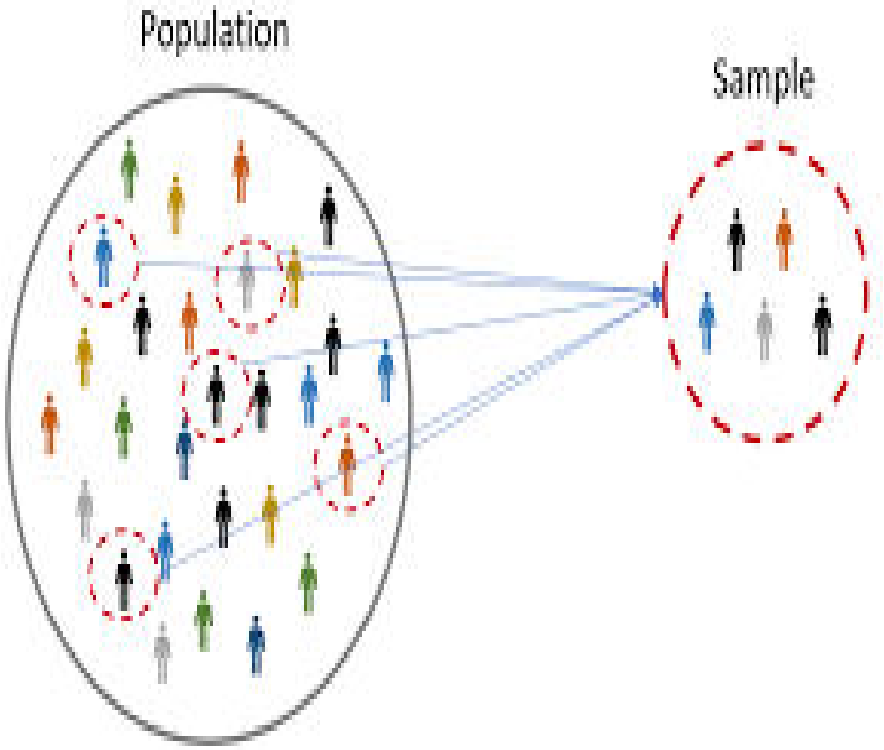
- *Working Hypothesis* - Temporary assumption made in order to draw out and test its logical consequences.
- They affect the manner in which tests are conducted.
- Process to go about developing Hypothesis.
- Discussion with colleagues and experts about problem.
- Examination of data and records concerning to the problem.
- Review of similar studies in the area.
- Exploratory personal investigation which involves – field interviews.

4) Preparing the Research Design

- Preparation of research design involves following consideration.
  - Obtaining Information
  - Availability and skills of researcher and his staff Explanation
  - Time available for research
  - Cost Factor relating to research – finance available.

5) Determining the Sample Design

- Simple random sampling.
- Systematic sampling.
- Stratified sampling.
- Quota sampling.
- Cluster sampling and area sampling.
- Multi stage sampling.
- Sequential sampling.



6) Collection of Data

- Data in hand is inadequate. So need to collect appropriate data
- Ways to collect data
- Primary Data – Observation and Surveys
    - Observation
    - Personal Interview
    - Telephonic interview
    - Mailing of questionnaires
    - Through Schedules.

Collection of Data

7) Analysis of Data

- Coding
- Editing
- Tabulation
- Computation of percentage coefficients
- Statistical tests
- Statistical measures

Hypothesis -- Meaning

- A hypothesis is a proposed explanation for a phenomenon. For a hypothesis to be a scientific hypothesis, the scientific method requires that one can test it. Scientists generally base scientific hypotheses on previous observations that cannot satisfactorily be explained with the available scientific theories. ~ *Wikipedia*

- **hypothesis**

/hʌɪˈpɒθɪsɪs/

noun

noun: **hypothesis**; plural noun: **hypotheses**

a supposition or proposed explanation made on the basis of limited evidence as a starting point for further investigation.
"his 'steady state' hypothesis of the origin of the universe"

Similar: theory | theorem | thesis | conjecture | supposition | speculation

- **PHILOSOPHY**
  a proposition made as a basis for reasoning, without any assumption of its truth.
  "the **hypothesis that** every event has a cause"

Origin

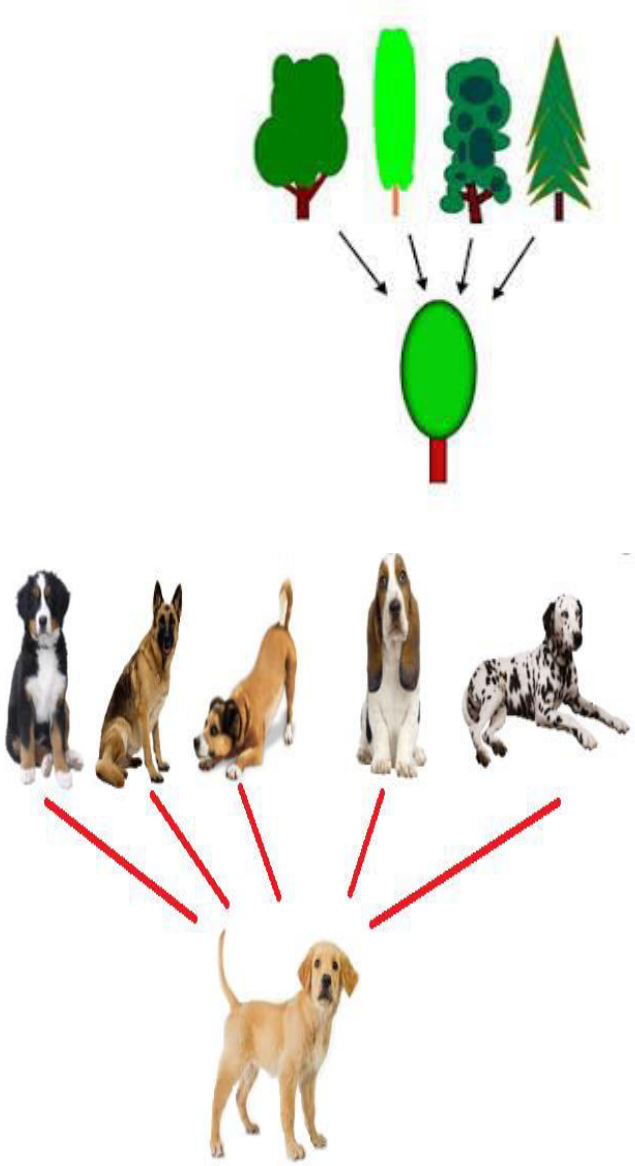
GREEK hupo under + GREEK thesis placing → GREEK hupothesis foundation → LATE LATIN hypothesis *late 16th century*

8) Hypothesis Testing

- Various tests like Chi-square, t-test, f-test have been developed by statisticians.
- Hypothesis may be tested through use of one or more such tests depending on nature and object of research.
- Result – either accepted or rejected.

9) Generalization and Interpretation

- Real value of research lies in its ability to arrive at certain generalization.
- If researcher had no hypothesis to start with, he might seek to explain his findings on basis of some theory – Interpretation.



10) Preparation of Report / Thesis

- Preliminary pages – date, acknowledgement, foreword.
- Main text – introduction, summary of findings, main report, conclusion.
- End – appendices, bibliography – list of books, journals, reports, etc...
- Report should be concise.
- Charts and illustrations – clearly and forcibly

Criteria for a Good Research

Criteria for a Good Research

1) Purpose should be clearly defined.
2) Procedure used should be described in sufficient detail.
3) Design of research should be carefully planned to yield result as objective.
4) Report – complete frankness, flaws in procedural design.
5) Analysis should be sufficiently adequate, method of analysis should be appropriate.
6) Conclusion should be confined to those justified by data of research.

Criteria for a Good Research

- Good research is systematic
  - Research should be structured with specified steps to be taken in specified sequence.
- Good research is logical
  - Research is guided by rules of logical reasoning and logical procedure of induction and deduction.
- Good research is empirical
  - Research related to basically to one or more aspect of real situation and deals with concrete data.
- Good research is replicable
  - Allows research results to be verified by replicating the study and thereby building on sound basis of decision.

Problems Encountered by Researchers in India

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RESEARCH METHODOLOGY

An Introduction

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RESEARCH METHODOLOGY

Defining the Research Problem

RESEARCH METHODOLOGY

Defining the Research Problem

Department of Computer Science and Engineering

Chapter 2:
Defining the Research Problem

Contents –

1. What is a Research Problem?
2. Selecting the Problem
3. Necessity of Defining the Problem
4. Techniques in Defining a Problem

What is a Research Problem

A research problem is a specific issue, difficulty, contradiction, or gap in knowledge that you will aim to address in your research.

A research problem is a statement about an area of concern, a condition to be improved, a difficulty to be eliminated, or a troubling question that exists in scholarly literature, in theory, or in practice that points to the need for meaningful understanding and systematic investigation.

Difficulty which a researcher experiences in a context of either theoretical or practical situation and wants to obtain the solution to overcome the same.

What is a Research Problem

Textbook Definition:
"Research Problem, in general, refers to some difficulty which a researcher experiences in the context of either a theoretical or practical situation and wants to obtain a solution for the same."

A RP does exist if the following conditions are met:

I = Individual
N = eNvironment (def by uncontrolled variables, Y_j)
C_1, C_2 = two Courses of action
O_1, O_2 = two Outcomes

What is a Research Problem

The courses of action available must provides some chance of obtaining the objective, but they cannot provide the same chance, otherwise the choice would not matter.
Thus, if P (Oj | I, Cj , N) represents the probability that an outcome Oj will occur, if I select Cj in N,

$P(O_j \mid I, C_j, N)$ = Probability

$P(O_1 \mid I, C_1, N) != P(O_1 \mid I, C_2, N)$

The choices must have unequal efficiencies for the desired outcomes.

What is a Research Problem

We can, thus, state the components of a research problem as under:

(i) There must be an individual or a group which has some difficulty or the problem.

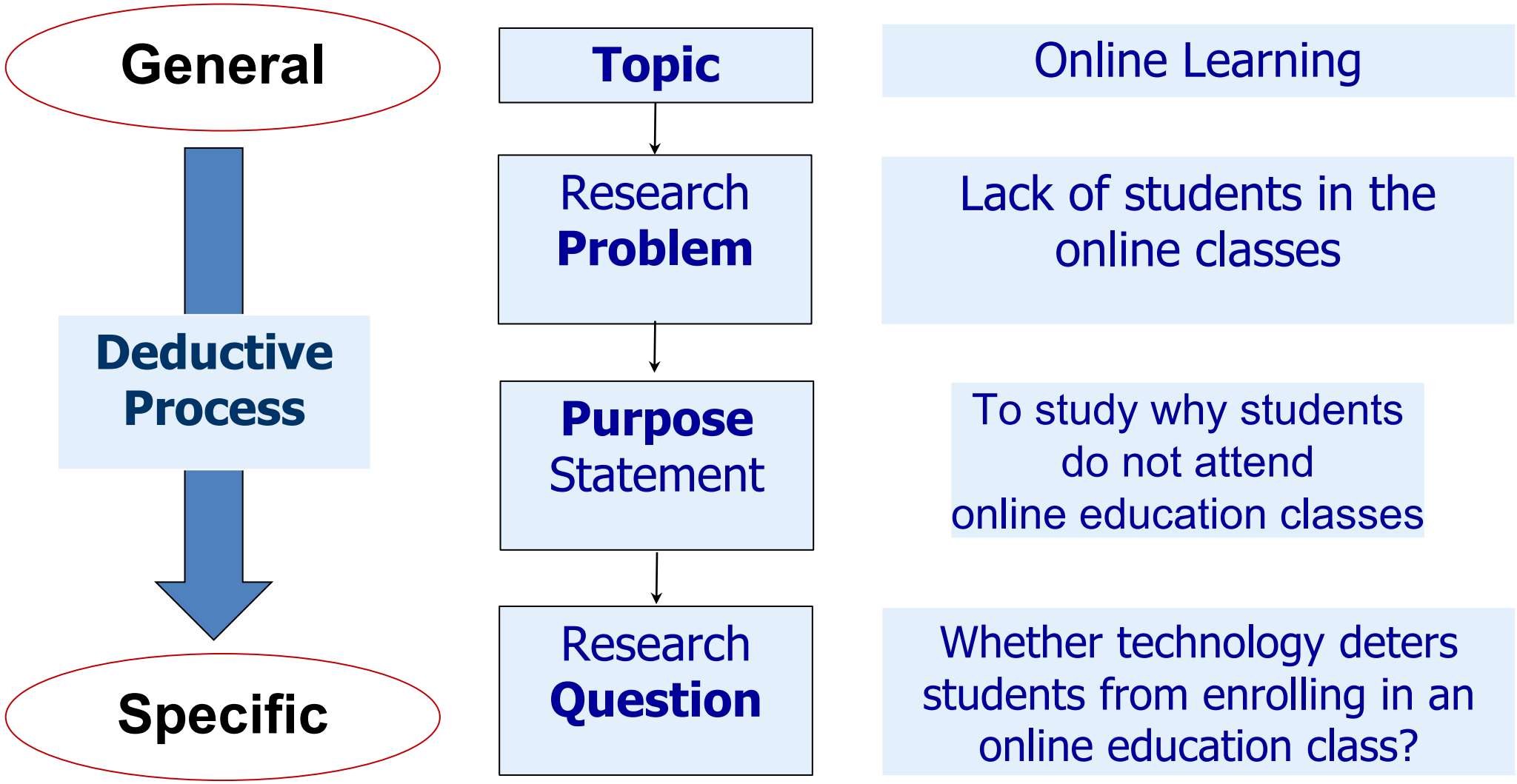
(ii) There must be some objective(s) to be attained at. If one wants nothing, one cannot have a problem.

(iii) There must be alternative means (or the courses of action) for obtaining the objective(s) one wishes to attain. This means that there must be at least two means available to a researcher for if he has no choice of means, he cannot have a problem.

(iv) There must remain some doubt in the mind of a researcher with regard to the selection of alternatives. This means that research must answer the question concerning the relative efficiency of the possible alternatives.

(v) There must be some environment(s) to which the difficulty pertains.

Topic, Problem, Purpose & Questions



The 5 Elements of Problem Statement

Topic — *Subject area*

Social Work Issue — *A concern / problem needing solution*

Evidence for the Issue

- *Evidence from literature*
- *Evidence from practical experience*

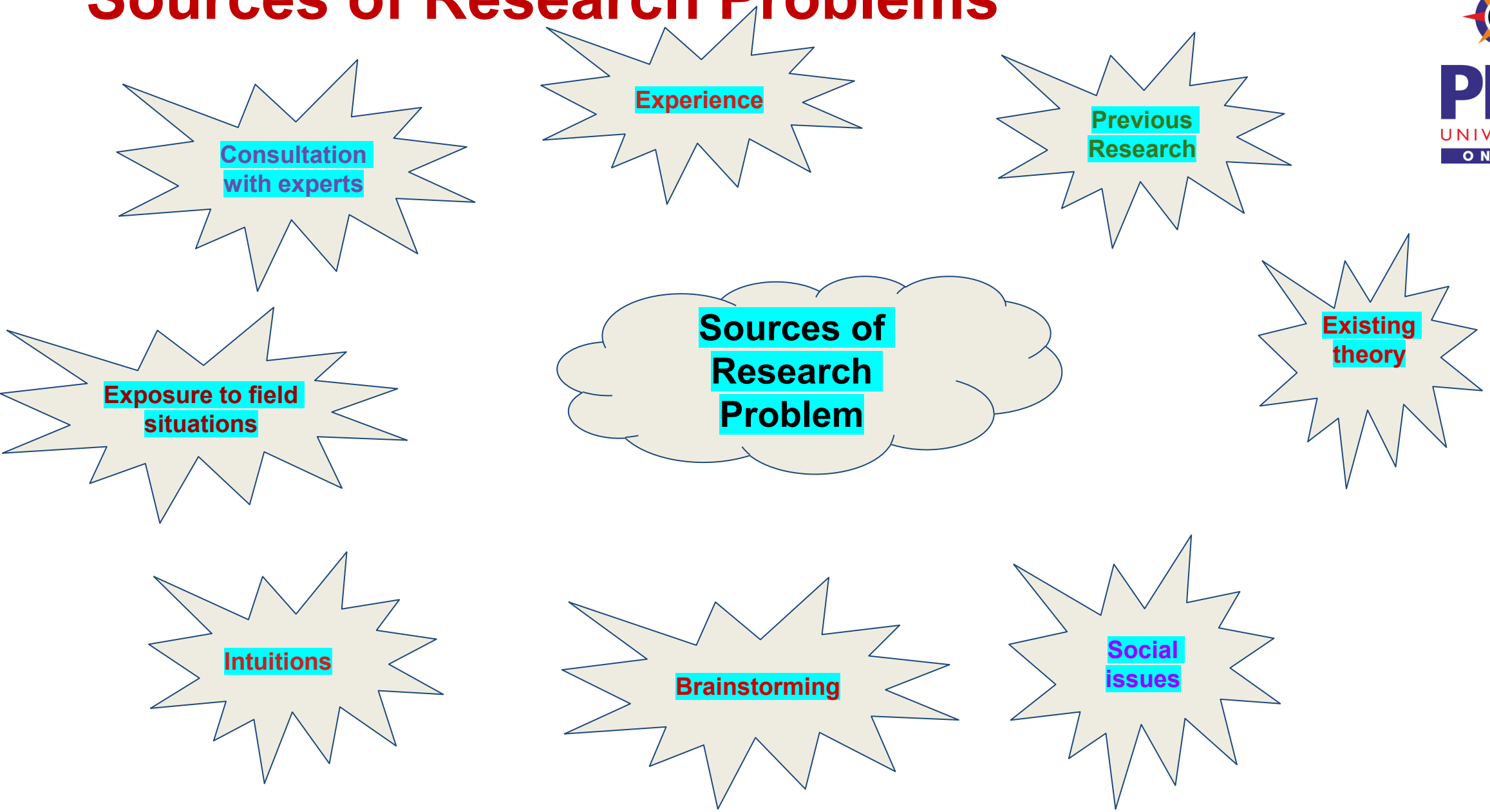
Deficiencies in the Evidence

What is missing in evidence?
What do we need to know more?

Remedy of Deficiencies It helps whom?

How the solution helps:
Researchers; educators; policy makers; persons in the field

Sources of Research Problems



Selecting of a Research Problem

1. Subject which is not overdone is chosen
2. Controversial subject should be avoided
3. Avoid vague problem
4. Subject should be familiar and feasible
5. Before the final selection of a problem is done, a researcher must ask himself the following questions:

(a) Whether he is well equipped in terms of his background to carry out the research?

(b) Whether the study falls within the budget he can afford?

(c) Whether the necessary cooperation can be obtained from those who must participate in research as subjects?

6. Selection of problem must be preceded by preliminary study

Necessity of Defining the Problem

Clearly stated research problem is half solved:

1. What data are to be collected?
2. What characteristics of data are relevant?
3. What relations are to be explored?
4. What techniques are to be used for this purpose?

Technique Involved in Defining a Problem

1. State the problem in a general way
2. Understand the nature of the problem
3. Survey the available literature
4. Develop ideas through discussions
5. Rephrase the research problem

Technique Involved in Defining a Problem

a) Technical terms and words or phrases, with special meanings used in the statement of the problem, should be clearly defined.
b) Basic assumptions or postulates (if any) relating to the research problem should be clearly stated.
c) The criteria for the selection of the problem should be provided.
d) The suitability of the time-period and the sources of data available must also be considered.
e) The scope of the investigation (or the limits within which the problem is to be studied) must be mentioned explicitly.

In Conclusion

- The task of defining a research problem follows a sequential pattern —
  - the problem is stated in a general way, the ambiguities are resolved,
  - thinking and rethinking process results in a more specific formulation of the problem so that it
  - may be a realistic one in terms of the available data and resources and
  - is analytically meaningful.

- All this results in a *well defined research problem* that is
  - meaningful from an operational point of view,
  - paves the way for the development of working hypotheses and
  - means of solving the problem.

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Defining the Research Problem

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Literature Review

RESEARCH METHODOLOGY

Literature Review

Department of Computer Science and Engineering

RESEARCH METHODOLOGY : Literature Review

Chapter Objectives:

1)Review of Literature (RoL)
- What, Importance, Why/Purpose, Goal

2)Sources of Literature

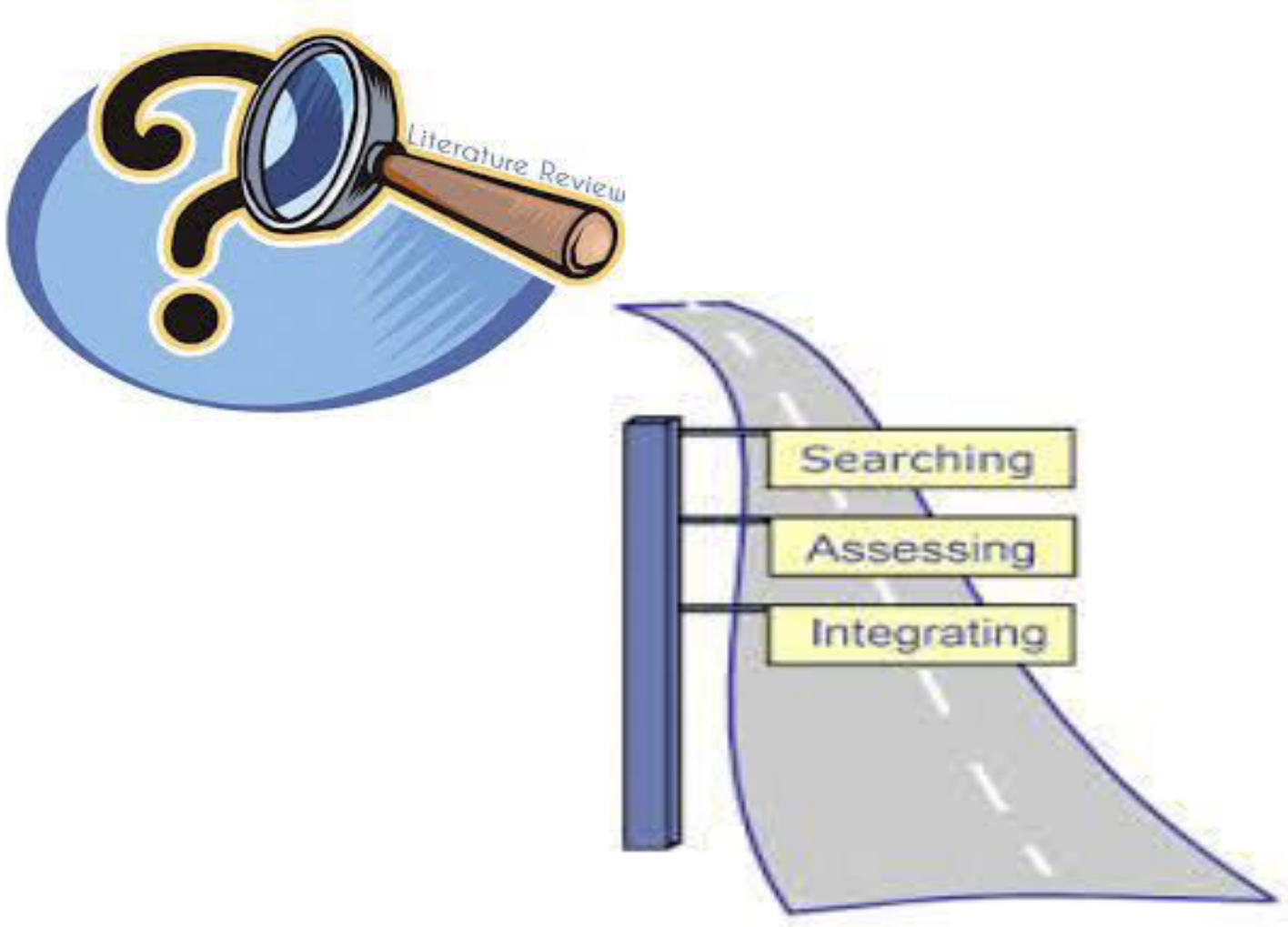
3)Technique of Reviewing

4)Organization

5)Writing LR

6)Good LR Properties

RESEARCH METHODOLOGY : Literature Review



REVIEW OF LITERATURE (RoL)

A broad, comprehensive, in-depth, systematic, and critical review of scholarly publications.

A Literature Review
surveys, summarizes, and links together research (a.k.a., literature) in a given field

RESEARCH METHODOLOGY : Literature Review

RoL

- Important step in Res. Process; laborious but essential
- An account of what is already done/known about the issue
- Describe, summarize, evaluate.
- Clarify & integrate the content of primary reports

RESEARCH METHODOLOGY : Literature Review

What is Review of Literature?

It is a CRITICAL EVALUATION of available literature on the topic of research to be carried out

Provides an overview of the problem to be studied

Continued….

RESEARCH METHODOLOGY : Literature Review

Importance of Review of Literature?

- Identification, development, refinement of RQ's
- Identification of gaps/inconsistencies
- Strength and weaknesses of designs/methods /instruments used in research work
- Development of plan – research methodology
- Development of Research Hypothesis

RESEARCH METHODOLOGY : Literature Review

Why Review of Literature?

Purpose

For the chosen Research Problem, RoL Determines :

1. Design/Md. of study – Instruments, data collection, analysis
2. Replication needed
3. What is till date known
4. Gaps / inconsistencies & consistencies
5. Unanswered questions
6. Strengths / weaknesses
7. Refinement of research problem
8. Hypothesis
9. Justification

RESEARCH METHODOLOGY : Literature Review

Function of RoL

The literature review is a critical look at the existing research that is significant to the work that you are carrying out.

- To provide background information
- To establish importance
- To demonstrate familiarity
- To “carve out a space” for further research

RESEARCH METHODOLOGY : Literature Review

Primary and Secondary Sources

Primary source:

is written by a person(s) who developed the theory or conducted the research

Secondary source:

is written by a person(s) other than the individual who developed the theory or conducted the research

Reasons for using secondary sources:

1. Primary sources is literally NOT available
2. A secondary source can provide different ways of looking at an issue or problem

Secondary sources should not be overused

RESEARCH METHODOLOGY : Literature Review

Primary and Secondary Sources

Primary source: Example

An original qualitative on patient experiences in the ICU:

Feeling safe the psychosocial needs of ICU patients.

Hupcey, J. E. (2000).
Journal of Nursing Scholarship, 32:361-367
www.drjayeshpatidar.blogspot.com

Secondary source: Example

A literature review on patients experiences in the ICU:

Patient experiences of being in an intensive care unit

Stein-Parbury, J. & Mckinley,S. (2000) : a select literature review.
American Journal of critical care, 9:20-27 www.drjayeshpatidar.blogspot.com

RESEARCH METHODOLOGY : Literature Review

Sources for RoL

- Electronic data-bases
- Journals
- Research Reports - thesis
- Books
- Conference Papers
- Magazines/newspapers
- Encyclopedias and dictionaries

RESEARCH METHODOLOGY : Literature Review

When you read an article:

Questions to consider:

- Has the author clearly defined the problem/issue?
- How good is the study design?
- How valid are the results?
- Are there flaws in the logic of the discussion?
- What problems has the author avoided or ignored?

RESEARCH METHODOLOGY : Literature Review

T E C H N I Q U E

OF REVIEWING OF LITERATURE

Key words / refined / focused
Shortlist articles – basis, ABSTRACT
Data base / s
Latest first & backwards - year
Table – authors, place, year, Journal
Methods (Expt. Details)
Data collection, analysis
Findings, results, inference

Organize (acc. to time / theme / method)
Transition – linking
Intro. - Body – Conclusion (justify)

Comprehensive, Cohesive, Concise Write-up

RESEARCH METHODOLOGY : Literature Review

B E F O R E W R I T I N G RoL

Sketch of Scheme
Organize

Organize

- **Consider organization**
  - You've got a focus, and you've narrowed it down to a **thesis statement**.
  - Now what is the most **effective** way of presenting the information?
  - What are the most important **topics, subtopics**, etc., that your review needs to include?
  - And in what **order** should you present them?

RESEARCH METHODOLOGY : Literature Review

What should you write?

- the accepted facts in the area
- the popular opinion
- the main variables
- the relationship between concepts and variables
- shortcomings in the existing findings
- limitations in the methods used in the existing findings
- the relevance of your research
- suggestions for further research in the area.

RESEARCH METHODOLOGY : Literature Review

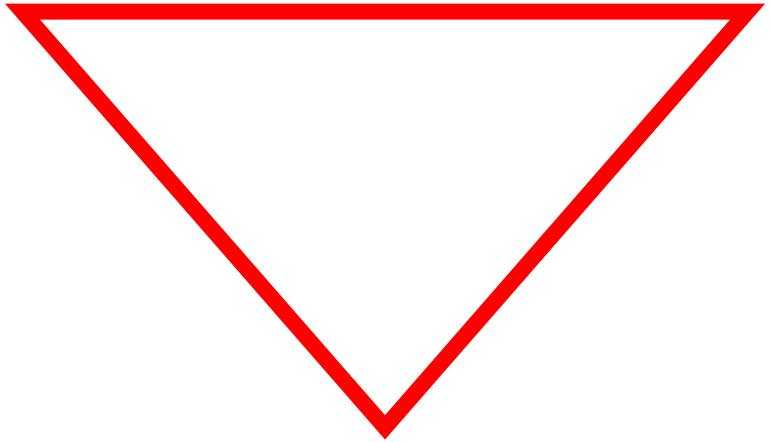
When you read your RoL:

CRITIQUING CRITERIA

1. Uncover gaps, inconsistencies & consistencies
2. Relevant concepts & variables included
3. Reveal components of study of design (Expt.)
4. Strengths, weaknesses & conflicts depicted (in rel. to current area)
5. Conceptual & Data based literature included
6. Summary and synthesis done (Integration)
7. Follow a logical sequence (Time, theme, method, trend..)
8. Signify what to be researched (Justification & lead to HYPOTHESIS)

Organization of literature review

- **A general organization looks like a funnel**
  - Broader topics
  - Subtopics
  - Studies like yours



RESEARCH METHODOLOGY : Literature Review

A Good Literature Review is:

Focused - The topic should be narrow. Present ideas and report on studies that are closely related to topic.

Concise - Ideas should be presented economically

Logical - logical progression from one idea to the next

Developed - Don't leave the story half told

Integrative - What commonality among articles? How are some studies different?
Your paper should stress how all the studies reviewed contribute to your topic.

Current - Your review should focus on work being done on the cutting edge of your topic

THANK YOU

RESEARCH METHODOLOGY

Literature Review

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