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

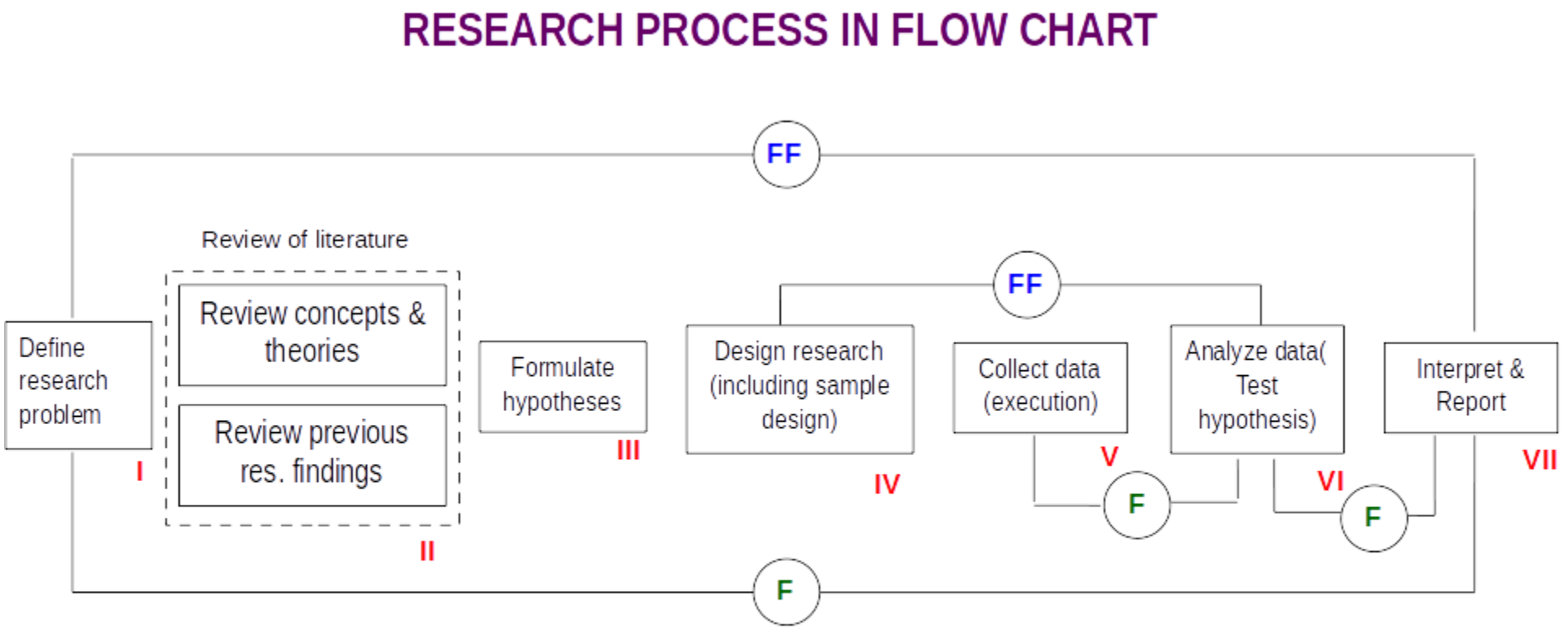
It is necessary for the researcher to design his methodology for his problem as the same may differ from problem to problem.
For example, an architect, who designs a building, has to consciously evaluate the basis of his decisions, i.e., he has to evaluate why and on what basis he selects particular 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

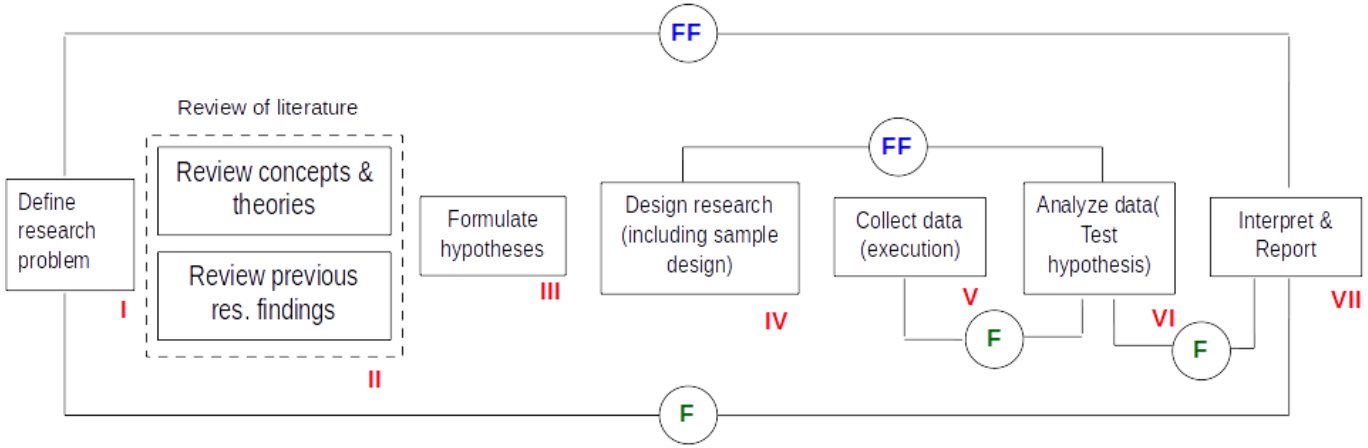


Research Process

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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