

Research Methodology

MEANING OF RESEARCH

- Research is “re-search,” meaning a voyage of discovery. “Re” means again and again, and “search” means a voyage of knowledge.
- Research in common parlance refers to a search for knowledge.
- One can also define research as a scientific and systematic search for pertinent information on a specific topic.
- In fact, research is an art of scientific investigation.
- The Advanced Learner’s Dictionary of Current English lays down the meaning of research as “a careful investigation or inquiry specially through search for new facts in any branch of knowledge.”

OBJECTIVES OF RESEARCH

- to discover answers to questions through the application of scientific procedures.
- The main aim of research is to find out the truth which is hidden and which has not been discovered as yet.

OBJECTIVES OF RESEARCH

- 1. To gain familiarity with a phenomenon or to achieve new insights into it (studies with this object in view are termed as exploratory or formulative research studies);
- 2. To portray accurately the characteristics of a particular individual, situation or a group (studies with this object in view are known as descriptive research studies);
- 3. To determine the frequency with which something occurs or with which it is associated with something else (studies with this object in view are known as diagnostic research studies);
- 4. To test a hypothesis of a causal relationship between variables (such studies are known as hypothesis-testing research studies).

MOTIVATION IN 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

- (i) Descriptive vs. Analytical:
- Descriptive research includes surveys and fact-finding enquiries of different kinds. The major purpose of descriptive research is description of the state of affairs as it exists at present.
- Analytical research, on the other hand, the researcher has to use facts or information already available, and analyze these to make a critical evaluation of the material.

TYPES OF RESEARCH

- (ii) Applied vs. Fundamental:
- Research can either be applied (or action) research or fundamental (to basic or pure) research.
- Applied research aims at finding a solution for an immediate problem facing a society or an industrial/business organisation,
- Fundamental research is mainly concerned with generalisations and with the formulation of a theory.

TYPES OF RESEARCH

- (iii) Quantitative vs. Qualitative:
- Quantitative research is based on the measurement of quantity or amount. It is applicable to phenomena that can be expressed in terms of quantity.
- Qualitative research, on the other hand, is concerned with qualitative phenomenon, i.e., phenomena relating to or involving quality or kind.

TYPES OF RESEARCH

- (iv) Conceptual vs. Empirical:
- Conceptual research is that related to some abstract idea(s) or theory. It is generally used by philosophers and thinkers to develop new concepts or to reinterpret existing ones.
- Empirical research relies on experience or observation alone, often without due regard for system and theory.

Research Approaches

- Two basic approaches to research: **quantitative** approach and the **qualitative** approach.
- This approach can be further sub-classified into *inferential*, *experimental* and *simulation* approaches to research.
- **Qualitative** approach to research is concerned with subjective assessment of attitudes, opinions and behaviour.

Research Approaches

- ***Inferential*** approach to research is to form a data base from which to infer characteristics or relationships of population.
- ***Experimental*** approach is characterized by much greater control over the research environment and in this case some variables are manipulated to observe their effect on other variables.

Research Approaches

- Simulation approach involves the construction of an artificial environment within which relevant information and data can be generated.

Significance of Research

- (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;

Significance of Research

- (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 generalizations of new theories.

Research Methods versus Methodology

- **Research methods** may be understood as *all those methods/techniques that are used for conduction of research.*
- Research methods or techniques, thus, refer to *the methods the researchers use* in performing research operations.

Research Methods versus Methodology

- 1. In the first group we include those methods which are concerned with the collection of data. These methods will be used where the data already available are not sufficient to arrive at the required solution;
- 2. The second group consists of those statistical techniques which are used for establishing relationships between the data and the unknowns;
- 3. The third group consists of those methods which are used to evaluate the accuracy of the results obtained.

Research Methods versus 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.
- In it we study the various steps that are generally adopted by a researcher in studying his research problem along with the logic behind them.
- Research methodology : the systematic process of solving a research problem.

Research Methods versus Methodology

- The scope of research methodology is wider than that of research methods.
- *Thus, when we talk of 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 and Scientific Method

- Research, can be termed as “an inquiry into the nature of, the reasons for, and the consequences of any particular set of circumstances, whether these circumstances are experimentally controlled or recorded just as they occur.

Research and Scientific Method

- The scientific method is one and same in the branches (of science) and that method is ***the method of all logically trained minds*** ... the unity of all sciences consists alone in its methods, not its material; the man who classifies facts of any kind whatever, who sees their mutual relation and describes their sequences, is applying the Scientific Method and is a man of science.
- ***Scientific method is the pursuit of truth as determined by logical considerations.***

The scientific method is

- 1. It relies on empirical evidence;
- 2. It utilizes relevant concepts;
- 3. It is committed to only objective considerations;
- 4. It presupposes ethical neutrality, i.e., it aims at nothing but making only adequate and correct statements about population objects;

The scientific method is

- 5. It results into probabilistic predictions;
- 6. Its methodology is made known to all concerned for critical scrutiny are for use in testing the conclusions through replication;
- 7. It aims at formulating most general axioms or what can be termed as scientific theories.

- Thus, “the scientific method encourages a rigorous, impersonal mode of procedure dictated by the ***demands of logic and objective procedure.***
- Accordingly, scientific method implies an ***objective, logical and systematic method,***

- a method free from personal bias or prejudice,
- a method to ascertain demonstrable qualities of a phenomenon capable of being verified,
- a method wherein the researcher is guided by the rules of logical reasoning, a method wherein the investigation proceeds in an orderly manner and a method that implies internal consistency.

Importance of Knowing How Research is Done

- (i) For one who is preparing himself for a career of carrying out research, the importance of knowing research methodology and research techniques is obvious since the same constitute the tools of his trade.

Importance of Knowing How Research is Done

- (ii) Knowledge of how to do research will inculcate the ability to evaluate and use research results with reasonable confidence.

Importance of Knowing How Research is Done

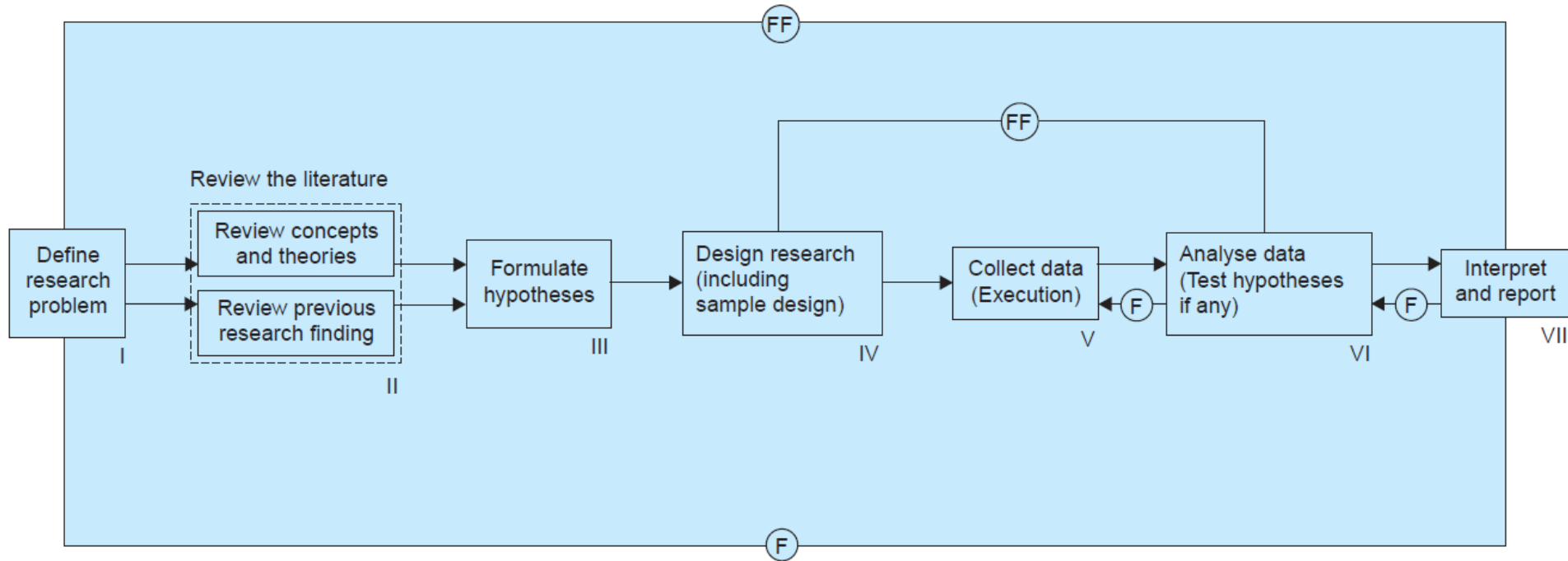
- (iii) Then one may have the satisfaction of acquiring a new intellectual tool which can become a way of looking at the world and of judging every day experience.

Importance of Knowing How Research is Done

- (iv) The knowledge of methodology helps the consumer of research results to evaluate them and enables him to take rational decisions.

Research Process

RESEARCH PROCESS IN FLOW CHART



Where (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)

Criteria of Good Research

- 1. Good research is systematic:
- It means that research is structured with specified steps to be taken in a specified sequence in accordance with the well defined set of rules.
- Systematic characteristic of the research does not rule out creative thinking but it certainly does reject the use of *guessing and intuition* in arriving at conclusions.

Criteria of Good Research

- 2. Good research is logical:
- This implies that research is guided by the rules of logical reasoning and the logical process of induction and deduction are of great value in carrying out research.

Criteria of Good Research

- 3. Good research is empirical:
- It implies that research is related basically to one or more aspects of a real situation and deals with concrete data that provides a basis for external validity to research results.

Criteria of Good Research

- 4. Good research is replicable:
- This characteristic allows research results to be verified by replicating the study and thereby building a sound basis for decisions.

Criteria of Good Research

- 1. The purpose of the research should be clearly defined and common concepts be used.
- 2. The research procedure used should be described in sufficient detail to permit another researcher to repeat the research for further advancement, keeping the continuity of what has already been attained.

Criteria of Good Research

- 3. The procedural design of the research should be carefully planned to yield results that are as objective as possible.
- 4. The researcher should report with complete frankness, flaws in procedural design and estimate their effects upon the findings.
- 5. The analysis of data should be sufficiently adequate to reveal its significance and the methods of analysis used should be appropriate. The validity and reliability of the data should be checked carefully.

Criteria of Good Research

- 6. Conclusions should be confined to those justified by the data of the research and limited to those for which the data provide an adequate basis.
- 7. Greater confidence in research is warranted if the researcher is experienced, has a good reputation in research and is a person of integrity.