

Unit- 1

Research Methods: An Introduction

Overview of Research

Research is mostly used terminology in different academic and business institutions. Research as consciously and creative human activity involves discovering and learning new things. Where there is a problem there is always a research. It is an essential tool for understanding the events and structure of the social world. Research can mean different things to different people. People have defined research differently according to their perception.

1.1. Meaning of Research

Research-Commonly refers to a search for knowledge. Some people consider research as a movement from known to unknown. It is indeed a voyage of knowledge.

Hertz provided the most simplified definition of research. His definition referred research to the original and creative activities.

Research is the application of human intelligence in a systematic manner to a problem whose solution is not immediately available.

Woody on the other hand defined research, as an activity comprises defining and redefining problems, formulating hypothesis or suggested solutions; collecting, organizing and evaluating data; making deduction and reaching at conclusion to determine whether they fit the formulated hypothesis.

An author called Klopsteg gives the most comprehensive definition of research. According to him "Research is original and creative intellectual activity, carried out in the laboratory, the library or in field which endeavors to discover new facts and to apprise and interpret them properly in the light of previous knowledge. With constantly increasing understanding, it revises previously accepted conclusion, theories and laws, and makes new application of its findings. Whether it seeks to extend knowledge for its own sake or to achieve results with specific economic or social value, its **raison de'tre** is its contribution to human welfare.

1.2. Motivation of research

Research is not a trouble- free duty rather it is time consuming, tiresome and expensive undertaking.

The possible motives for doing research can be either one or a combination of the following:

- Desire to get degree with its consequential benefit.
- Desire to get respect and promotion (to own respect in society)
- Desire to face a challenge in solving the unsolved problem
- Desire to get intellectual joy of doing some creative work
- Directive of government
- Employment condition

Common Objectives of Research

Any research activity is designed to discover and answer to questions through the application of scientific procedure. It is an activity aimed at finding out the truth which is hidden and which has not been discovered yet or to verify or reject that the existing phenomenon (theory, principle or law) accepted as true.

Through each research study has its own specific objectives; any research has got the following common (general) objectives.

- o To generate new knowledge, principle and scientific law
- o To review and synthesize existing knowledge. That is, To verify the validity of the previous work
- o To investigate some existing situation or problem
 - To explain new phenomena
 - To examine the cause of the problem
 - To examine the nature of the problem
- o To provide solutions to a problem
- o To conduct or create a new procedure and new system
- o A combination of any one of the above

1.4. Research and Scientific method

The two terms, research and scientific methods are closely related. The researcher is not interested in particular results; rather he is interested in

the repeatability and validity of results and their application to more complicated and general situations.

Research methodology and techniques are mostly different from one science to another or can be different from research to research. The philosophy common to all research methodology and technique is called scientific methods.

Steps in Scientific methods

The steps in scientific methods are summarized as follows:

- *Observation:* the first or initial step in the scientific method is a minute and careful observation of the subject matter of research.
- *Recording:* the next step to observe in scientific method is a careful recording of all information (data) obtained in the first step, i.e. observation
- *Classification:* the collected data (information) have to be classified and organized. The classification implies systematically arranging and organizing the recorded data on the logical basis so that they will become viable for the analysis and to make generation.
- *Generalization:* It is an extension of general laws and principles on the basis of the pattern exhibited by the classified material. This general law is known as scientific law.
- *Verification:* the scientific method does not stop only at the formulation of general law. The general principle must be verified.

Forms of Scientific Methods

There are six primary forms of scientific methods

1. **Induction:** the movement of knowledge from particular facts to general rule or principle.
2. **Deduction:** a movement in knowledge from a general rule to a particular case.
3. **Historical:** historical method is back ward movement in knowledge to trace the cause of phenomenon

4. **Comparative:** this method is used for the analysis and comparison of two contemporary (coexisting and present) phenomenon.
5. **Structural:** a study of what a things, what are its outline and significant feature is a structural study (the comparison of a thing)
6. **Functional:** In contrast to the structural method, functional method studies the processes and their cause, that is, how and why of a thing.

Methods versus Methodology

- o **Research techniques:** Refers the behavior and instruments we use in performing research operation such as making observation, recording data, data processing techniques and the like.
- o **Research methodology:** can be understood as all those approaches and techniques that are used in conducting a particular research.
 - Research methodology can be put in to three groups:
 - ✓ The first group include approaches or techniques of data collection
 - ✓ The second group consists of those statistical techniques used to established relationship between variables
 - ✓ The third group consists of those techniques involved in evaluating the accuracy of the result obtained
- o **Methods:** is a way to systematically solve the research problem. Method can be understood as a science of studying how research is done scientifically.

1.5. Research Process

Before starting the details of research methods, it is appropriate to have a brief overview of the research processes.

Research processes consist of a series of actions or steps, which are necessary to successfully carry out research activities. The research process consists of a number of closely related activities. These activities (steps) can overlap continuously rather than following a strictly prescribed sequence. The first step can determine the nature of the last step to be

undertaken. These steps are not separate and distinct they do not necessarily follow each other in any specific order kothari (1990)

However, the following order of steps provides a useful procedural guideline regarding processes.

- Identification and formulating the research process
- Extensive literature survey
- Developing working hypothesis
- Preparing the research design
- Determine sample design
- Collecting data
- Execution of the project
- Analysis of the data
- Hypothesis testing
- Generalization and interpretation
- Reporting the result

1.6. Criteria of Good Research

Whatever may be the types of research works and studies, one thing that is important is that they all meet on the common ground of scientific method employed by them. One expects scientific research to satisfy the following criteria:

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.
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.
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.

In other words, we can state the qualities of a good research as under:

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.
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. Induction is the process of reasoning from a part to the whole whereas deduction is the process of reasoning from some premise to a conclusion which follows from that very premise. In fact, logical reasoning makes research more meaningful in the context of decision making.
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.
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.