variety of methods and for differing periods of time! Management of HR surpluses may require downsizing and outplacement. Attrition and early retirement are commonly used.

Chapter-3

RESEARCH METHODOLOGY

3.1 INTRODUCTION

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.

“All progress is born of inquiry. Doubt is often better then overconfidence, which leads to inquiry, and inquiry leads to invention.” which is quoted by famous Hudson Maxim in context of significance of research Research inculcates scientific and inductive thinking and it promotes the development of logical habits of thinking and organization.

The role of research in several fields of applied economics, whether related to business or to the economy as a whole, has greatly increased in modern times. The increasingly complex nature of business and government has focused attention on the use of research in solving
operational problems. Research, as an aid to economic policy, has gained added importance, both for government and business.

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 result assists, in more then one way, in taking business decision. The purpose of research is to discover answers to questions through the application of scientific procedures. Though each research study has its own scientific purpose, we may think of research objectives as falling into a number of following groups:

- To gain familiarity with a phenomenon or to achieve new insights.
- 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 casual relationship between variables.

**The prime objective of any research can be summarized as to**

1. Discover new facts
2. Verify and test important facts
3. Analyze an event or process or phenomenon to identify the cause and effect relationship
4. Develop new scientific tools, concepts and theories to solve and understand Scientific and nonscientific problems
5. Find solutions to scientific, nonscientific and social problems and
6. Overcome or solve the problems occurring in our everyday life
Research is important both in scientific and nonscientific fields. In our life new problems, events, phenomena and processes occur every day. Practically implementable solutions and suggestions are required for tackling new problems that arise. Scientists have to undertake research on demand find their causes, solutions, explanations and applications. Precisely, research assists us to understand nature and natural phenomena.

Some important avenues for research are:

1. A research problem refers to a difficulty which a researcher or a scientific community or an industry or a government organization or a society experiences. It may be a theoretical or a practical situation. It calls for a thorough understanding and possible solution.
2. Research on existing theories and concepts help us identify the range and applications of them.
3. It is the fountain of knowledge and provides guidelines for solving problems.
4. Research provides basis for many government policies. For example, research on the needs and desires of the people and on the availability of revenues to meet the needs helps a government to prepare budget.
5. It is important in industry and business for higher gain and productivity and to improve the quality of products.
6. Mathematical and logical research on business and industry optimizes the problem in them.
7. It leads to the identification and characterization of new materials, new living things, new stars, etc.
Only through research, inventions can be made; for example, new and novel phenomena and processes such as superconductivity and cloning have been discovered only through research.

Social research helps in finding answers to social problems. They explain social phenomena and seek solution to social problems.

Research leads to a new style of life and makes it delightful and glorious.

Emphasizing the importance of research, Louis Pasteur said “I beseech you to take interest in these sacred do-mains called laboratories. Ask that there be more and that they be adorned for these are the temples of the future, wealth and well-being. It is here that humanity will learn to read progress and individual harmony in the works of nature, while humanity’s own works are all too often those of barbarism, fanaticism and destruction.” (Louis Pasteur – article by S. Mahanti Dream 2047, p. 29–34 (May 2003)).

In order to know what it means to do research one may read scientific autobiographies like Richard Feynman’s “Surely you are joking, Mr.Feynman!”, Jim Watson’s “The double helix”, “Science as a way of life – A biography of C.N.R. Rao” by Mohan Sundararajan, etc.

RESEARCH METHODS AND RESEARCH METHODOLOGY

Is there any difference between research methods and research methodology ? Yes.

Research methods are the various procedures, schemes, algorithms, etc. used in research. All the methods used by a researcher during a research study are termed as research methods. They are essentially planned, scientific and
value-neutral. They include theoretical procedures, experimental studies, numerical schemes, statistical approaches, etc. Research methods help us to collect samples, data and find a solution to a problem. Particularly, scientific research methods call for explanations based on collected facts, measurements and observations and not on reasoning alone. They accept only those explanations which can be verified by experiments. Research methodology is a systematic way to solve a problem. It is a science of studying how research is to be carried out. Essentially, the procedures by which researchers go about their work of describing, explaining and predicting phenomena are called research methodology. It is also defined as the study of methods by which knowledge is gained. Its aim is to give the work plan of research.

3.2 SUBJECT OF THE STUDY

The world has become a small village with extraordinary development of information technology. Every human being in the modern environment has to think globally and act locally. Top executives as human being has to face a lots of problem in the day to day working life of him. In absence of B.O.D. he is the key person to take managerial decision and also to manage the entire organization – resulting stress and affect on HR-components.

I want to test the effect of technology adoption on human culture, the motivation, the quality of work life, stress and efficiency/effectiveness of employee. That is why I have selected the topics:

“A STATISTICAL ANALYSIS AND COMPARATIVE STUDY OF MODERN TECHNOLOGY WITH IMPACTS ON HUMAN RESOURCE DEVELOPMENT IN PUBLIC SECTOR BANK”
3.3 OBJECTIVES OF STUDY:

In this investigation I have considered the following:

1. To examine the trend of technology in the country.
2. To study the implication of technology on the HR Practices in The public sector bank who had adopted the new technology in their organization.
3. To study the changes in the HR practices in relation to job satisfaction, motivation, quality of work life, organizational culture, in past and future.
4. To examine the effect of technology on overall employee efficiency before and after adoption of technology.
5. To offer suggestions for improvement in the HR practices for successful technological adoption.

3.4 HYPOTHESIS FOR THE STUDY

1. There is no significant difference in HR Practices of public sector bank before and after the technological adoption.
2. There is no significant difference in culture of the organization before and after the technological adoption.
3. There is no significant difference in motivation of employees before and after the technological adoption.
4. There is no significant difference in quality of work life before and after the technological adoption.
5. There is no significant difference in stress level of employees before and after the technological adoption.

3.5 VARIABLES USED IN THE STUDY
For the present study the researcher has taken into account five types of variables, as observed from the specific objectives and corresponding null hypotheses mentioned above. These variables are furnished below:

1. Age and other variables
2. Experience and other variables
3. Educational Qualification and other variables
4. Organizational Environment and other variables
5. Job Satisfaction and other variable

3.6 UNIVERSITY OF THE STUDY:

The universe of the study consists of all kind of employees who have been working with public sector bank in Gujarat State.

3.7 SAMPLING PLAN

Total population : 1200

Geographical/sample area : Public sector Bank

Sample size : 132

Sampling Procedure : Random Sample

SAMPLING DESIGN
The sample would be selected considering the following factors.
1. The data will be collected for five years beginning from 2004 to 2009 which will be considered on secondary data.

2. The public sector bank who adopted the new technology in their organization are consider for data collection through questionnaire method.

**DATA COLLECTION**

A. **Method of data collection** – The necessary data would be obtained through questionnaires consisting of rating scale and by interviews.

B. **Source of data** – The study would be based on both primary and secondary data.

   The Primary data would be collected from the selected employees among the The public sector bank who adopted the new technology in their organization.

   Secondary data would be obtained from business newspapers, magazines, journals and through the internet as relevant to the research study.

**3.8 PERIOD OF STUDY, DATA COLLECTION AND DATA ANALYSIS:**

The present study is made on the basis of data collected from all category of staff in the public sector bank from 2 years to 25 years. The data collected were duly edited, classified, and analyzed using all type of relevant statistical techniques and employing the most appropriate parametric and non-parametric tests. The data were presented through simple classification and with the help of percentage, average, correlation and association. The data were analyzed and the hypothesis were tested at 5 percent level of significance by employing appropriate test. The normal technique used by the researcher is observation, questionnaire, interview, analysis of records, case study, etc.
Methods are more general than techniques. Methods and Techniques are used in performing research operations, i.e.,

Collection of data, Statistical processing & analysis (tests) and to evaluate the accuracy of the results obtained.

### 3.9 Research design

After the formulation of research objectives, the next step was to identify the tools and procedures to collect and analyze data relevant to the research problem.

Our research purpose is experimentation to prove the relationship. It is the blueprint of procedure to test hypotheses by reaching valid conclusions about relationships between independent and dependent variables.

Research design shall consist of:

The sample design, Observation design, Statistical design and Operational design

### 3.10 LIMITATION OF STUDY

1. The study is limited to the state of Gujarat.
2. The authenticity of secondary data used depends entirely on the accuracy of such data.
3. During the course of personal interviews, the prejudices or bias on part of interviews may have influence on the response received.
4. The study would take into account for limited number of companies and their employees which have the accuracy of the results.
5. Time is the biggest constraint.
6. Primary data is used which is not always give correct result.
7. Sample is randomly selected so it may not help to give overall information about particular program category.
8. Non-probability method is used which may not be best for the research work.
9. Judgment sampling is not scientific, as the sample is affected by the biases, of the investigator.
10. Success of this method depends on the knowledge about the population then the sample will be representative not.
11. There is no method for determining the sample error in this method.
12. Questionnaire tool is used for data collection in which bias, manipulated replies and incomplete replies can be possible.

3.11 CONCLUSION:

1. Examine the trend of technology in the country.
2. Study the implication of technology on the HR practices in The public sector bank who adopted the new technology in their organization.
3. Study the changes in the HR practices in relation to job satisfaction, motivation, quality of work life, organizational culture, in past and future.
4. Examine the effect of technology on overall employee efficiency after the modernisation.

5. Offer suggestions for improvement in the HR Practices for successful technological adoption.