2018 -19 Onwards

SEMESTER – V

Skill Based Elective Paper III – RESEARCH METHODS FOR MANAGEMENT

UNIT – I

Research – Definition – Objectives – Types – Significance – Qualities of a good research - Research process.

UNIT – II

Research design – Important Concepts – Sampling – Types - Measurement of scaling Technique – Classification.

UNIT – III

Data collection – Methods – Selection of appropriate method – Data analysis – Processing operations - Editing, Coding, Tabulation – Types of analysis. (Theory only)

UNIT – IV

Interpretation and Report writing – Steps in writing reports – Layout of research report – Types – Mechanics of writing research report.

UNIT – V

Contemporary in research: Commonly used Technologies in Business Research – Managerial advantages – Computers and Research – Characteristics - Software used in Business Research – Problems encountered by researchers in India.

Text Book

C.R Kothari : Research Methodology

Reference Books

Uma sekaran : Research methods for business

Dr. T. Raju and Dr. R.Prabhu : Research Methods for Business

Boyd and Westfall : Marketing Research

Gown M.C : Marketing Research

Green Paul and Tall : Marketing Research

UNIT I

Subject Name	Subject Code	Semester	Prepared by
Research Methods for Business	**18BBA55S**	**V**	**Dr Prabhu R Assistant Professor**

What is Research?

Researchers defined research in their own style.

Kerlinger: "Systematic, controlled, empirical and critical investigation of hypothetical propositions about the presumed relations among natural phenomena"

Though in common parlance research connotes '*search for more knowledge*', the real meaning of research goes beyond searching for knowledge.

Research is a systematic or scientific investigation

- to search for solutions to the existing and future problems
- to establish relationship, if any, among variables and
- to find something new to increase our knowledge

Searching for solutions to problems - Examples

- A medical scientist researching to invent/ discover a medicine to cure cancer. Here cancer is the problem and the new medicine is the solution.
- A horticulturist engaging in research to find a suitable chemical/method to improve the colour of the apple. In this case dull colour is the problem and the new chemical/method is the solution.
- A design engineer in a car manufacturing company trying to modify the engine to reduce fuel consumption. Here, the problem is higher consumption of fuel and the solution is new engine design.
- The marketing team looking out for a new promotional programme to improve sales :
  Problem: Poor sales

  Solution: New promotional programme

- The personnel manager in a star hotel searching for appropriate incentives
  Problem: Lack of motivation or low morale

  Solution: Appropriate incentive

- A financial analyst searching for a simple way of calculating VAT
  Problem: Complex way of calculating VAT

  Solution: A simple procedure of calculating VAT

Establishing relationship among variables - Examples

- Medical research undertaken to find out weather there is any true relationship between pawn-chewing and mouth cancer, sweet eating and diabetes or mental worries and baldness.
- Tea research station searching for correlations between shade pattern and yield of tea, sunshine and quality of tea or rainfall and fungal diseases
- Marketing wings investigating the association between disposable income of middle income group and sales of four-wheelers or educational background of housewives and demand for white goods.
- Production departments analyzing the relationship between preventive maintenance and productivity, raw materials and product quality or training programmes and industrial accidents.
- HRD managers conducting surveys to find plausible association between absenteeism and supervisor's attitude, incentives and overtime work or frequency of strikes and grievances handing mechanism.

Researching to increase knowledge - Examples

- A clinical psychologist intensely observing how a HIV-positive person behaves in a group to add more information to group therapy
- An agricultural scientist conducting a botanical survey to improve knowledge on plant diversity
- Govt.of India sending teams of scientists to Antarctica to explore the possibility of any biological growth in freezing environment
- Discovery channel deploying animal enthusiasts in African jungles to add more knowledge to animal behavior.
- A personnel manager observing through a hidden video camera the behavior of workers in the canteen to improve his knowledge on off-the-job behavior of workers

- A marketing researcher posting himself in a corner of a departmental store to understand more about customer behaviors in customer relationship management

Why to Study Research Methodology?

A study of research methodology helps people:

- to be aware of the range of research methods that can be employed.
- to make appropriate choices [i.e to understand whether to employ a particular technique of data collection or analysis.]
- to know the 'dos' and 'don'ts' when using a particular approach to collecting or analyzing data.
- to provide insights into the overall research process.
- to differentiate good research from bad research and
- to transfer the learnt skills such as sampling, designing questionnaire, conducting interview, making observations etc to other areas.

Objectives/Purposes of Research

The objectives of research mostly depend on situational factors.

The major objectives are :

- to gain familiarity with a phenomenon (buying behavior of rural population in respect of latest electronic gadgets)
- to analyze the characteristics of an individual, group or situation (understanding the leadership skills of a successful business magnate, the phenomenal expansion of a new company or the reasons for delinquency in low-income groups)
- to determine the frequency of occurrence of certain phenomenon (fatal accidents in highways and railway crossings and alcoholisms/ absenteeism among workers)
- to test a causal relationship between variables (different age groups and their visits to beauty parlors or excess pocket money and student's absenteeism)
- to develop new techniques, concepts or theories (new advertisements through animation or promotional campaigns involving physically challenged persons) and

- to find solutions to problems (this could be the ultimate objective)

Other Objectives

- to identify facts for critical evaluation.
- to develop new tools / techniques for studying unknown phenomena
- to help planning and formulation of strategies and policies.
- to promote better decision making
- to aid in forecasting and
- to optimize utilization of resources

Motives for Research

The motives in undertaking research vary from person to person and from situation to situation. The motives could be:

- to derive satisfaction out of solving an unsolved problem (Attempts made by Galileo, Newton, Franklin, Einstein and the like)
- to gain intellectual joy in creative work (the numerous inventions/discoveries made by Thomas Alva Edison and G.D.Naidu of Coimbatore)
- to serve various sections of the society (social scientists researching the habitats of tribal or functioning of self-help groups)
- to satisfy the needs of an organization/authority (sponsored research undertaken by scientists/scholars) and
- to get a research degree (students of M.B.A., M.Phil., and Ph.D. programmes pursuing research)

Characteristics of a Good Research/Researcher

To get qualified as a good research, the research must be:

Rational: There is no place for rule of thumb or superstitious belief in research. There should be always a cause-effect relationship. The question of obtaining objects from thin air does not arise in a rational research. Dalton's time-tested theory 'matter can neither be created nor destroyed and can only be transferred from one from to another' should be the underlying factor in rational research.

Systematic: There is order or methodology or logical sequence in conducting research. Here, the means are as important as the ends. Haphazard way of conducting a study is anathema to good research.

Scientific: There must be empirical evidence. That is, all results and inferences must be supported by data. All observations, attitude, opinions etc., must be quantified for valid analysis and interpretation. For a good research data base is indispensable.

Objective: Judgements i.e., inferences must be made based on facts only without any personal prejudice or favor or external influence. A spade is always called a spade in objective research.

Universal: The results must be amenable for generalization and applicable for universal adaptation.

Increasing body of knowledge: A research should enrich the existing knowledge. Additional data obtained must be valuable. Treading on beaten track is not a good research.

Verifiable: Similar to universality, a good research must be amenable for verification. It should yield the same type of results under similar conditions. There could be exceptions as in the case of behavioral science.

Honesty: Honesty is the back bone of research. The researcher must be honest and scrupulous in collection of data, analysis, interpretation and reporting of the results/inference.

It is interesting to note that the term **RESEARCH** itself carries the quality of the good research. Further, the popular term "**MOVIE**" supplements "**RESEARCH**" in describing an ideal research

RESEARCH

R-Rational ways of thinking

E-Expert treatment

S-Search for solutions

E-Exhaustive treatment

A-Analytical (Analysis of data)

R-Relationship between facts and theories

C-Constructive attitude, critical observation, condensed generalization and cautious / careful recording

H-Honesty and Hard work

MOVIE

M-Mathematical precision/accuracy

O-Objectivity

V-Verifiability

I-Impartiality

E-Exactness

Further a good research includes the following :

- Defining the purpose clearly.
- Detailing the research process
- Planning the research design
- Revealing the limitations frankly
- Maintaining high ethical standards.
- Analyzing the decision marking need adequately
- Presenting the findings without confusion
- Justifying the conclusions.

Planning, Conducting and Reporting in Good Research:

Good research involves generating dependable data through professional and scientific process to be used in reliable decision making

Defining Purpose: The purpose of good research should be clearly defined in unambiguous terms. The problem involved, decision to be made, scope of the investigations and its limitations and all the terms used are to be explained explicitly.

Detailing the Research Process: The research process must be described with all details such as the participants, sampling method used, procedure for data collection, statistical methods used for analysis etc.,Sources of data are also revealed. [except where secrecy is to be maintained for certain obvious reasons]. In short, the process must be transparent to gain confidence.

Planning: A good planning is necessary to realize the purpose / objectives of the research. Planning includes selection of source of data, thorough review of literature, avoiding personal bias etc.,

Revealing Limitations: The limitations of the study such as flaws in the procedural design, difficulties in collecting data, non- availability of appropriate statistical tool, inadequacy in generalization etc., must be frankly revealed.

Analysing Data: Analysis of data must be extensive enough to reveal its significance. That is, it should provide certain insights. Prior to analysis the data are checked for reliability and validity. The data are presented logically for meaningful interpretation. In the statistical analysis of the data probability of error is estimated using the criteria of statistical significance.

Presenting With Clarity: The language of presentation must be clear, precise and assertive reflecting the confidence and integrity of the researcher. Generalization beyond the statistical findings/ evidence, exaggerations, unnecessary verbiage etc., must be avoided. Presentation of data must be comprehensive, adequately and critically interpreted, easily understandable and properly organized to locate critical findings.

Justifying Conclusions: Conclusions must be drawn based on the data collected and analysed. Researchers' personal experiences and their interpretations in related areas should not influence the conclusions. Further, applying the conclusions from a study of inadequate sample to the universe must be avoided. A good research should always specify the conditions under which the conclusions seem to be valid.

Application of Ethical Standards: Care is taken to see that the participants / respondents are not subjected to physical / psychological harm and exploitation. There should not be invasion of privacy and loss of dignity. [For details refer to the topic "Ethics in Business" discussed at the end of the chapter.]

Characteristics of a good researcher:

A good researcher must

- Have a scientific frame of mind
- Be alert and imaginative.
- Be quick in understanding
- Have adequate education and training
- Have patience and perseverence
- Be aware of the scope of research and limitation
- Have high integrity
- Be ethical

Objectivity in Research:

Objectivity means the willingness and ability to conduct research without any favor fervor, or hatred. The conclusions drawn should not depend on personal beliefs, likes, dislikes or hopes. Collection of data, analysis and interpretation must be free from any sort of bias or prejudice. A good researcher should be impartial. That is why it is insisted that the researcher should formulate the null hypothesis (no effect, no difference or no relationship) first.

To make sure that research adopts a scientific procedure, the following aspects are taken into consideration seriously :

- clearly defining the purpose of the research
- describing the research process with all details
- following a thoroughly planned research design
- frankly revealing the limitations
- providing adequate/appropriate analysis
- presenting the findings unambiguously

- justifying the conclusions and
- applying high ethical standards

Factors affecting objectivity

There are many factors which affect objectivity:

Personal prejudices and biases: Prejudices and biases originate from habits of thought, temperamental weakness, skeptical attitude, wishful thinking, vested interest etc., These make one to believe in a particular aspect without considering the available evidence.

Value- related problems: Sometimes the researcher is influenced by his/her values, beliefs and attitudes towards persons, objects and happenings. Family background, upbringing during childhood or the community may also affect the outcome of the research.

Personal perception: Even before initiating the research the researcher may have his/her own perception or preconceived notions. These pre-conceived ideas/options are likely to distort the ultimate results or utility of research.

Ethical dilemmas: These arise out of the researcher's relationship/acquaintance with others. More frequently the researcher may be biased in favor of sponsors of the research project or those who render help in collection of data. Sometimes personal interest or eagerness to satisfy the power- that- may- be creates ethical dilemma. In certain cases greediness for cheap popularity may make researchers unethical.

Social phenomena: Customs, social beliefs and social status may also influence the interpretation/ inference of research outcome.

Business Research

The changes brought in by research to improve the efficiency and effectiveness of the varied activities of humans are phenomenal; business is no exception. The enticing and scintillating advertisements which bombard us through print and electronic media, the concept of virtual office to accommodate high flying professionals, the performance based variable pay-structure to boost the morale of exceptional performers, the Golemans's emotional intelligence to enhance interpersonal relationship and leadership

style and the myriad management concepts and techniques influencing the functional areas of business, whether it is production, marketing HRM, or finance are the results accrued from creative research in business. Business research is defined as a systematic and objective process of gathering, recording and analyzing data to help making business decisions.

The definition suggests that

- research information is neither intuitive nor haphazardly gathered. It is collection of data using scientific investigation.
- the business researcher must be objective if the data collected and analysed are to be accurate.
- the objective is to facilitate managerial decision making process for all the aspects of a business [manufacturing, marketing, HR, finance etc.,]

Thus business or management research is an applied research to help managers in decision – making.

Business research is applying the techniques and nuances of science to the art of management. All businesses operate in the world of uncertainty caused by the environmental factors, macro (demographic, economic, politico-legal, social, cultural, technological, or natural) or micro (competitors, internal / external customers, dealers, suppliers or substitutes) or both. There is no unique way to eliminate uncertainty entirely. But business research can minimize the degree of uncertainty. People involve in business research to fill the gaps in the available literature, to resolve the inconsistency in the results of various studies or to assess the impact of development in a business such as the impact of e-mail on the nature and quality of interaction.

Why to study research in business?

The study of research methods provides the manager with the knowledge and skills needed to solve the problems and meet the challenges of a fast paced decision-making environment.

Factors stimulating interest in studying business research methods include the following (Cooper *et al*, 2012):

- *Explosive growth and influence of the Internet* : The explosive growth of company web sites , e-commerce and electronic publications [whose credibility and quality are increasingly suspected] need careful analysis.
- *Stakeholders demand :* Share holders, employees, customers, dealers, suppliers and general public have started demanding to be included in the decision making process. With extensive information the stakeholders have become more sensitive to their self–interests.
- *Competition:* More vigorous competition, both global and local is growing and coming from unexpected sources. This compels many organizations to refocus on primary competencies while seeking to improve operations by reducing costs and converting customers to advocates of products / services of the organization.
- *Government intervention:* To provide some minimal or enhanced level of social services governments are increasingly becoming aggressive in protecting their interests by restricting the use of managerial and business research tools.
- *Technology:* Changes are taking place rapidly in work patterns and relationships doing away with geographic borders.
- *Shift of economic activity:* Due to the shift in economic power to different regions new research designs are needed to accommodate different norms, values, beliefs, languages and technologies.
- *Analytical talent:* Managers face complexity in decision making which involves new mathematical models and highly sophisticated software.
- *Higher power computers:* Lower-cost data collection, better visualization tools, powerful computations, availability of integrated data and real-time access to knowledge make things different for decision makers.
- *New research perspectives:* Older tools and methodologies once used in exploratory research are gaining importance in the changed environment of decision making.

The increasingly complex nature of business consequent to eventful changes in technology, competition, consumer behavior etc. is compelling the businessmen to bestow more attention on research. As an aid to economic policy, research has gained added importance, both for Govt. and business organization.

Systematic research provides the basis for nearly all business policies of the government and government's analysis of needs and desires of the people and revenue available to meet the expenditure rest on research.

Operational marketing and motivational research are crucial for taking strategic business decisions. Business and society are mutually dependent. Successful business relies on tracking the significant changes in the society. Research is a dependable tool to feel the pulse of the society.

Business research is a systematic inquiry that provides information to guide business decisions. The studies included in business research may be reporting, descriptive, explanatory or predictive.

Need for Business Research [Zikmund, 2009]**:**

The determination of the need for research depends on the following factors:

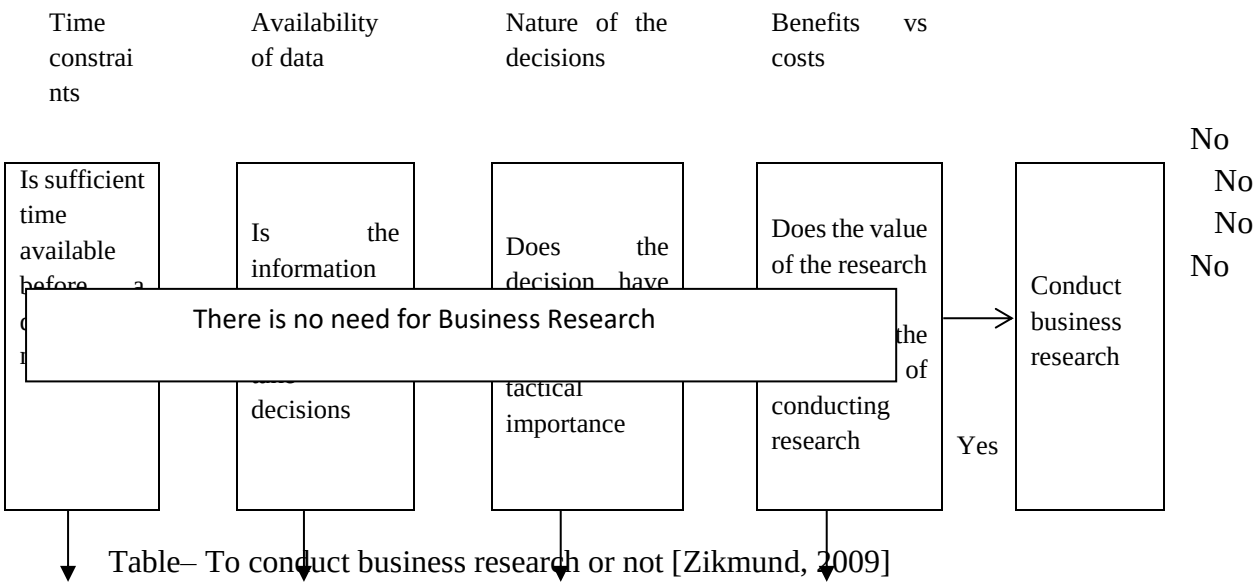
Time constraints: Because management decisions are to be made without loss of time and conducting research takes time, the urgency of a situation may do away with research.

Availability of data: If required data information is already available to make managerial decisions, managers may not think of any further research.

Nature of decision: A routine tactical decision that does not require a substantial investment may not warrant a detailed research.

Benefits vs Costs: Managers think of research when the rate of return is worth the investment in research, the information gained by business research to improve the quality of decision is more than the investment and the proposed research expenditure uses the available funds in the best way.

Whether to do a research or not is diagrammatically presented in Figure



Table– To conduct business research or not [Zikmund, 2009]

Scope of Business Research

Research helps business managers to take decisions in all the functional areas.

Marketing: Demand forecasting, consumer buying behavior, measuring effectiveness of advertisement, media selection, test marketing, product positioning, new product potential and etc.

Production: What to produce, how much to produce, when to produce, for whom to produce, how to improve quality control or reduce inventory cost and etc.

Materials: Where to buy, how much to buy, when to buy and at what price to buy.

Finance: How to manage the working capital, how to juggle the debt-equity ratio or how to improve the accounting procedure.

HRD: Man-power planning, incentive schemes, employment trend, turnover, performance appraisal and etc.

Govt.: Budgets, planning, resource optimization and etc.

Research Methods vs Research Methodology:

Student-researchers are likely to be confused with the terms research method and research methodology. Though the two terminologies appear to be similar there is subtle difference between the two.

Research methods: Research methods are the techniques the researcher employs in conducting research. Techniques to collect data, statistical tools to analyse the data and the procedure used to evaluate and compare the results are known as research methods.

Non-participant direct observation, participant observation, mass observation, mail questionnaire, opinionaire, interview schedule, personal interview, focused interview, telephonic interview and case study are the common techniques used to collect data.

The statistical techniques include correlation, regression, 't' test, Z-test, Chi-square, ANOVA, non-parametric tests and the multivariate analyses (Discriminant analysis, Cluster Analysis, Factor Analysis and etc.)

Analyses of historical records / documents for comparison and evaluation of the current results constitute the evaluative techniques.

Research Methodology: Research methodology is the way how a research problem is systematically solved employing the relevant research methods. Here, the various steps adopted and the logic in sequencing the steps are explained. In fact methodology decides the usage of various methods available. The scope of research methodology is wider than that of research method. It tries to answer why a research study is undertaken, how the research problem is defined, why a particular method is used and many more.

Research methods and methodology could be explained using the analogy of solving a mathematical problem. Addition, subtraction, multiplication and division are the methods and how these steps are used to solve a mathematical problem is the methodology

Types of Research:

The type of research depends on the information needed, methods adopted and nature of population.

Exploratory vs Formal:

Based on the degree of crystallization of research questions, research is divided as exploratory and formal.

Exploratory: The objective is just to have a superficial idea of the problem without going deep into the subject. No attempt is made to solve the problem. This research helps in formulating a hypothesis. Scientists visiting Antarctica or the moon to collect data is an exploratory research.

Formal: Formal research is a full-fledged serious research with substantial structure of well-defined parameters. This involves testing of hypothesis to find a solution or describe a situation.Generally a formal research is preceded by an exploratory research.

Descriptive Vs Analytical:

Descriptive Research: The purpose of descriptive research is to describe the existing or past state of affairs. The main characteristic of this research is that the researcher just describes what has happened or what is happening. For example, when an MBA student takes up a descriptive research on departmental stores in Coimbatore, he or she describes how many departmental stores are functioning in Coimbatore, where they are located, what types of goods are sold, how many persons are employed, what are the price structures, how many visit the stores and etc.The data may be obtained through surveys and presented in easily understandable format to have an idea about the state of affairs of departmental stores.Descriptive research attempts to answer the questions 'what', 'when', 'which' and 'where'.

Analytical Research: Also called as diagnostic research or causal explanatory study, analytical research tries to find why a particular phenomenon has occurred or it is occurring presently. The questions 'why' and 'how' are explained in analytical research. Analytical research is always preceded by descriptive research. In the above example of study of departmental stores, the student, after describing the nature of the stores, shall try to reason our why are people visiting a particular store in large number or how is it possible for a particular store to price their goods at a cheaper rate. Causal – explanatory research explains relationships among variables.

Experimental vs Expost facto

In terms of the researcher's ability to manipulate, research is differentiated into experimental and ex post facto research. In an experiment, the researcher attempts to control and/or manipulate the variables in the study. Experiments are appropriate to discover whether certain variables produce effects in other variables. Ex post facto research reports what has happened or what is happening and the researcher has no control

over the variables to manipulate them. It is in fact descriptive research. The term ex post facto, is, generally, used in social studies.

Qualitative vs. Quantitative Research

Qualitative Research: As the name suggests, qualitative research is concerned with the quality of phenomena which are not easily measured in quantitative terms. It is mostly used in behavioral science to understand why people behave differently. Studies on motivation, stress, perception, values, emotional intelligence and etc, are qualitative in nature. Word Association, Sentence Completion, Story Building and Rorschach Ink Blot tests are some of the commonly used techniques in qualitative research.

Quantitative Research: In quantitative research the observations are quantified and the results are expressed in terms of different units.

Qualitative measures involve

- generating new theories/hypotheses
- achieving a deep understanding of the issues
- detailed study and
- more funds

Some researchers find little difference between qualitative and quantitative data. It is argued that

- all qualitative data can be coded quantitatively and
- all quantitative data are based on qualitative judgment. However, qualitative research is exploratory and inductive in nature whereas quantitative research is confirmatory and deductive in nature. While qualitative research focuses primarily on the meaning of subjective attributes of individuals, quantitative research primarily focuses on the measurement of objective variables of individuals.

There are certain contrasting features between qualitative and quantitative research.

Numbers and words: While quantitative research mostly involves application of measurement procedures to social life, qualitative research uses mostly words in the presentation of analyses of society.

Research participants: In quantitative research the investigator assumes more importance than the participants. That is, it is the set of concerns which the investigator brings to structure the investigation. In qualitative research, the perspective of those being studied provides the point for investigation.

Distance between researcher and participants: In quantitative research, the researchers are not involved with participants [respondents] and in cases such as research based on postal questionnaire or hired interviewers, the researcher may have no contact with them at all. The researcher in qualitative research seeks close involvement with the people being investigated to genuinely understand the world through own eyes.

Emergence and testing of theory/concept: In quantitative Research, theoretical work precedes data collection whereas in qualitative research concepts and theories emerge out of the data collected.

State vs process: Quantitative research is seen as presenting a static image of a society with its emphasis on relationships among variables. But qualitative research is seen depicting the changing environment over time and the inter connections between actions of participants of social settings.

Type of structure: Quantitative research is highly structured to examine the precise concepts and issues that are the focus of the study. Qualitative research is invariably unstructured so that the possibility of getting the participants' reactions and concepts emerging out of the data collected is enhanced.

Context: While quantitative research focuses on generalizing the findings to the relevant population, qualitative research seeks to understand the behavior, values, beliefs, assumptions etc in terms of the context in which the research is conducted.

Type of data: Due to almost precise measurement, quantitative data are shown as robust and unambiguous. But in qualitative research, the contextual approach and the often prolonged involvement in data collection are claimed to add richness to the data.

Scale of operation: While quantitative research deals with the macro issue of large scale social trends and connection between variables, qualitative research is concerned with micro level small scale aspects of society, such as interaction.

Behaviour and meaning: While quantitative research is concerned with behavior of people, qualitative research deals with the meaning of action.

Type of setting: While quantative research is conducted in an artificial context, qualitative research investigates people in natural environment.

Triangulation is a term to describe combining of qualitative research with quantitative research to study a problem.

Conceptual vs. Empirical Research:

Conceptual Research: It is a qualitative research related to some abstract ideas defying clear explanations. Mostly followed by philosophers and thinkers, it is concerned with developing new concepts/ideas or reinterpreting the existing ones.

Empirical Research: It is data-based quantitative research amenable for verification. All scientific experiments are empirical in nature.

The following types of research could be descriptive, analytical, qualitative or empirical based on the objectives or purposes of research.

Longitudinal vs. Cross-sectional research: It is based on time dimension

While longitudinal research is extended over a period of time, cross-sectional research is a one-time research confined to a single period time. Results in cross-sectional research are obtained within a short period while longitudinal research takes longer period to yield any result.

Field vs Lab / Simulation / Historical Research **:** It is based on research environment

Field research: Field research involves conducting research in actual situations by collecting data through observation, questionnaire, interview and etc., from real population.

Lab / Simulation research: Small group studies based on random behaviour, role plays and role analyses come under laboratory research. In simulation research, computers are extensively used to simulate (duplicate) the real situations. Crisis management in war fields or plane-crashes is researched employing simulation research.

Historical research: It is confined to analysis and interpretation of historical records/documents. Secondary data (the data collected and compiled by other persons) are the base for historical research. *It is known as archival research*.

Conclusion- oriented vs Decision-oriented research:

Conclusion oriented research: In this type of research, the researcher is free to choose a problem and design the research as he/she wishes according to the objectives or situation. Here, the researcher is the sole authority and is independent in formulating the research. An independent social worker investigating the aftermath of Tsunami in the coastal villages with his/her owns funds/efforts is a conclusion-oriented research. The researcher is not under any obligations to any authority.

Decision –oriented research: In this type of research, the researcher conducts a research as per the requirements/direction of a decision –maker or authority. The topic and to some extent the research design are decided in advance by the authority. Here the researcher's freedom, is restricted in choosing the topic, geographical areas, sample size and etc. A Management Professor undertaking a research project sponsored by a company to study the consumer behaviour with particular reference to the company's products / services is a decision-oriented research.

Applied vs. Fundamental Research:

A research can be termed as applied or fundamental based on the objectives of the research.

Applied Research: It aims at finding a solution to the current or long-pending problem. Seeking a solution is the essence of applied research. Finding an easy cure for diabetes, formulating an effective drug to combat AIDS or cancer, developing a rice variety requiring less water, devising an advertisement capable of immediate attraction or retaining attention for longer period, inventing an incentive plan to motivate the employees and etc. are applied research. In applied research, the knowledge obtained in fundamental research is applied to seek a solution to the problem under investigation.

Fundamental Research: Termed as basic or pure research, fundamental research is concerned with throwing light on the basic aspects, theory or the intricacies of a phenomenon. Generally it does not seek solution to any problem. It is mostly related to gathering of knowledge for knowledge's sake. Studies on natural phenomenon (thunder, lightening, cell division or atomic structure), pure mathematics or human behaviour with respect to age, gender and etc are fundamental in nature.

Investigating the atomic structure and the characteristics of electrons, protons and neutrons is fundamental research. Utilizing the knowledge on atoms to generate nuclear power or to devise an atom bomb is applied research. Similarly, studying the behaviour of children at different ages is a fundamental research; utilizing these behavioural patterns to devise a programme for effective learning for children is applied research.

Which is more important, fundamental research or applied research?

Both are equally important. There cannot be any applied research without understanding the fundamental aspects. At the same time fundamental research will be an unproductive exercise unless the results are applied to find a solution to any problem. In essence, applied research derives its strength from

fundamental or basic research and basic research is valuable when the results / observations are applied to solve problems.

Action Research

Action research is designed to address complex and practical problems about which little is known. It helps managers gain insights to make decisions in specific situations. In action research

- the situation (scenario) is studied

- corrective action is determined, planned and executed

- the results of the action are observed and recorded and

- the action is evaluated as effective or not

The process is repeated till a desired result is obtained. In conducting this type of research much is learned in the process. In action research, effects of applied solutions are investigated and the theories, if developed, are validated through practical application.

Example: A departmental store which received no customer complaints since its inception saw a customer complaining about malfunctioning of a washing machine purchased from the store. If no general rules are available to deal with customer complaints, the manager may ignore the problem, get the malfunctioning machine repaired or replace the machine with a new one.

In action research, one of the options is selected and implemented and the outcome is observed. If the customer didn't return for further purchase, the manager has to choose a different action to deal with disgruntled customer. In short, action research tries to improve or set things right when regular work continues unlike other research activities where improvement is initiated only after the completion of the research activity.

Case study Research

The objective of case study is to obtain multiple perspectives of a specific organization, person, situation, event or process at a point of time or over a period of time through interviews, observations and already recorded information.

PAPA Model of Research

Some authors [Guthrie,2010], have put the entire range of research into four groups in the PAPA Model of research viz., Pure, Applied, Policy and Action research.

Pure Research: It is concerned solely with scientific outcomes of interests to scientists.

Applied Research: It is concerned with topics that have potential for practical application.

Policy Research: It is based on practical issues of intereset to those who make decisions

about them. Policy Research [mostly by Government authorities] is often entrusted to consultants who are given the terms of reference. Usually this type of work is time bound and requires research teams with special skills and considerable experience.

Action Research: It is concerned with working on particular activities to make direct improvements.

Research Process:

Research process, in essence, is the methodology or well defined procedure of conducting a research.

- it is a rigorous and impersonal mode of procedure dictated by the demands of logic and objectives.
- it is systematic, logical, empirical and replicable
- it involves various steps which are neither mutually exclusive nor are they separate or distinct.
- in brief, research process is a scientific enquiry

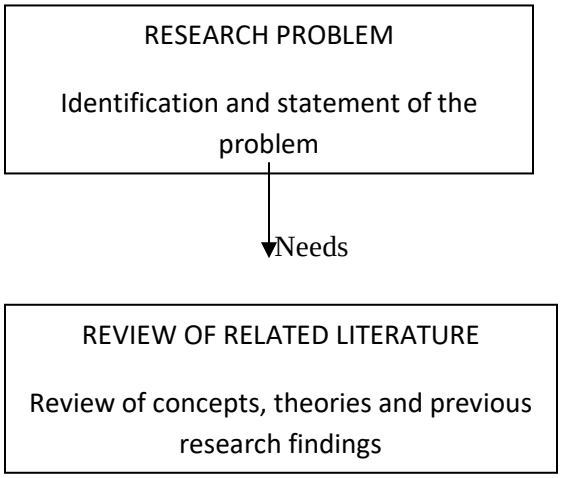
Before attempting to go ahead with the process, it is a by-gone conclusion that the researcher has already decided his area of research. Apart from selecting the major functional areas such as marketing, finance, human resource or production specific areas are identified depending on the researcher's interest, inclination or scope.

Marketing: Utility of products / services consumer behaviour, advertisement and sales promotion, dealer network, market share, impact of competition, scope for improvement of products/services or new product/ service, features of products/services, awareness and scope of financial products/service, functioning of organizations in various industries and etc. are some of the major areas for investigation.

Finance: Working capital management, financial performance, capital structure, equity or debt market, stock market and etc are the commonly researched areas in finance.

Human Resource: The off-beaten tracks of organizational climate, quality of work life, labor welfare measures, compensations, training and development programmes, career planning and performance appraisal, motivational incentives, leadership styles and etc., continue to have wider scope in the ever changing business environment.

Production: The students with engineering background and a liking for technological improvement may delve into inventory management, logistics, cost of production, quality improvement, product development and etc



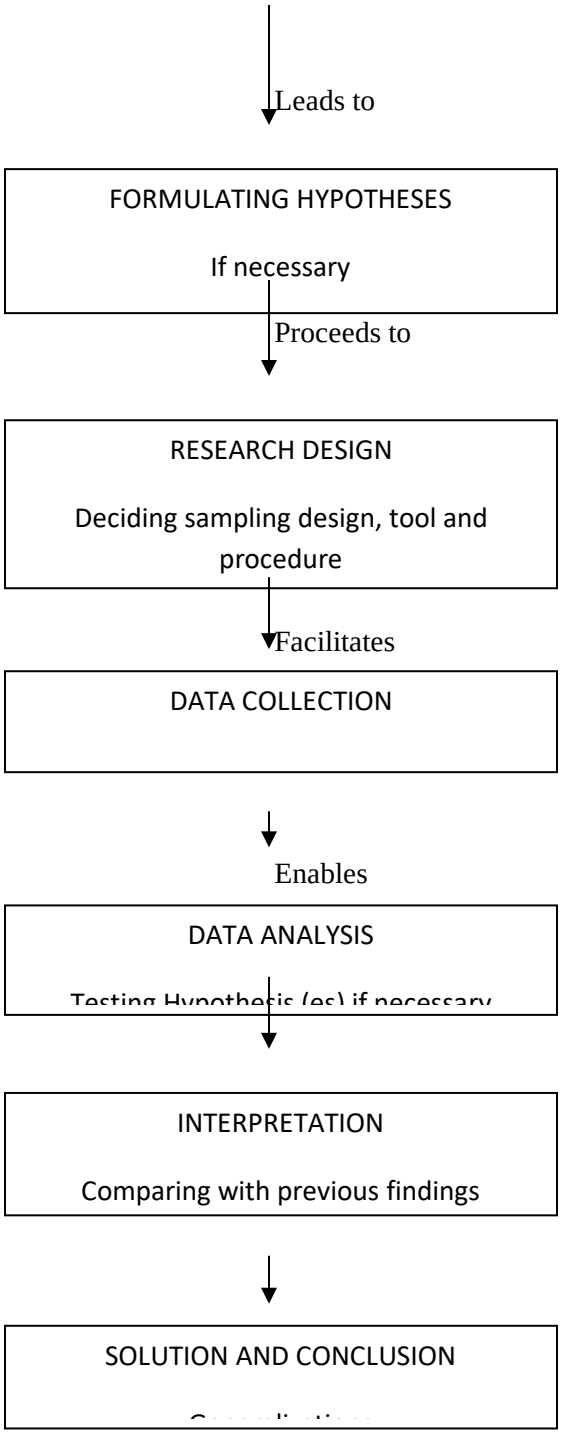


Fig: Research Process - Flow Chart

The steps involved in research process are detailed bellow

Step 1: Defining the research problem:

It is the process of identifying and pin-pointing a specific problem which requires a detailed investigation. This helps the researcher to put himself/herself in the right track. The topic and primary objective depend on the well-defined research problem. Defining the problem without any ambiguity goes a long way in investigating the problem or finding an appropriate solution.

Step 2: Review of Literature

For a first-time researcher, review of literature is an eye-opener. In fact, a review of relevant literature helps the researcher in fine-tuning of the definition of problem. Review includes collection of facts, details on concepts/theories and importantly the findings of earlier investigations/researches relevant to the problem in the process. Adequate information on the research methodology adopted by earlier workers and limitations encountered by them would help in redefining the present research process. Better ideas are obtained in determining sample size and sampling technique, formulating hypotheses, selecting appropriate techniques in data collection, choosing relevant statistical tests of the collected data and even interpreting and drawing inferences from the analysed data. Academic/industrial journals, popular magazines, proceedings of seminars/ workshops/ symposia/ conferences, reports of Govt. organizations/ NGOs, latest text books and etc. are the major sources of review. One source will, generally, lead to another. Nowadays, internet browsing has made things easier for the researcher in gathering adequate information.

Step 3: Formulating Hypotheses:

Hypothesis, which is a proposition, assumption or a tentative answer, is formulated to focus the research and to keep the researcher on the right track. Hypotheses (null hypothesis or alternative hypothesis) are either accepted or rejected based on the significance of statistical results. There is no need to frame hypothesis in exploratory research. In fact, exploratory research helps in formulation of hypothesis

Step 4: Research Design:

It is the plan of actions to collect and analyse data aiming at combining the relevance of purpose of research and economy of execution. It is almost a blue-print of research process. Depending on the nature of problem the research design could be exploratory, descriptive, diagnostic or experimental.

Research design includes :

- *Operational design :* Collection of data from entire population (census) or a sample.
- *Sampling design:* A definite plan for obtaining a sample from a given population.
- *Observation design:* Methods or tools such as interview schedule, questionnaire, personal / telephonic interview, participant/non-participant observations and etc. to collect information.

- *Statistical Design:* Selection of appropriate statistical tests to analyse the data collected. The designs are flexible to accommodate the needs of various types of research

Step 5: Data Collection:

Adequate and reliable data are collected employing appropriate technique (observation, interview, questionnaire and etc.)The data could be from the entire population (census method) or from a sample in the case of large population.

Step 6: Data Processing and Analysis:

The original raw data are first condensed into a few meaningful and manageable groups and classified into purposeful and usable categories. Data processing includes editing, coding (if necessary) and tabulation. The tabulated data are analysed employing appropriate statistical tools (tests of significance). Statistical analysis determines whether the effects, relationships or differences are significant or not. Hypotheses are either accepted or rejected based on statistical analysis.

***Step 7: Interpretation and Inference*:**

After testing the hypotheses through statistical analyses, the results are interpreted taking into consideration the past findings and present situations. An interpretation demands a thorough subject knowledge, analytical ability and common sense. Inferences are drawn from the interpreted data. Inferences are the final findings of the investigations.

Step8: Solution and Conclusion:

Solutions are derived from interpretations/inferences. Solution is the answer to a problem in question.

Conclusions are arrived at based on the findings. It is generalization of the findings which is the essence of the whole study.