MA (Economics) II Semester
Paper- Statistical Inferences and Research Methods (203)
UNIT- I

Meaning and Concept of Research

Research is a process of systematic inquiry that entails collection of data; documentation of critical information; and analysis and interpretation of that data/information, in accordance with suitable methodologies set by specific professional fields and academic disciplines.

Research is conducted to evaluate the validity of a hypothesis or an interpretive framework; to assemble a body of substantive knowledge and findings for sharing them in appropriate manners; and to generate questions for further inquiries.

Research is "creative and systematic work undertaken to increase the stock of knowledge, including knowledge of humans, culture and society, and the use of this stock of knowledge to devise new applications." It involves the collection, organization, and analysis of information to increase our understanding of a topic or issue.

In simple words research is work that involves studying something and trying to discover facts about it.

Definition of Research

One definition of research is used by the OECD, "Any creative systematic activity undertaken in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this knowledge to devise new applications."

Another definition of research is given by John W. Creswell, who states that "research is a process of steps used to collect and analyze information to increase our understanding of a topic or issue". It consists of three steps: pose a question, collect data to answer the question, and present an answer to the question.

The Merriam-Webster Online Dictionary defines research in more detail as "studious inquiry or examination; *especially* : investigation or experimentation aimed at the discovery and interpretation of facts, revision of accepted theories or laws in the light of new facts, or practical application of such new or revised theories or laws"

Characteristics of Research

1. A systematic approach must be followed for accurate data. Rules and procedures are an integral part of the process that set the objective. Researchers need to practice ethics and a code of conduct while making observations or drawing conclusions.
2. Research is based on logical reasoning and involves both inductive and deductive methods.
3. The data or knowledge that is derived is in real time from actual observations in natural settings.
4. There is an in-depth analysis of all data collected so that there are no anomalies associated with it.
5. Research creates a path for generating new questions. Existing data helps create more opportunities for research.
6. Research is analytical in nature. It makes use of all the available data so that there is no ambiguity in inference.
7. Accuracy is one of the most important aspects of research. The information that is obtained should be accurate and true to its nature. For example, laboratories provide a controlled environment to collect data. Accuracy is measured in the instruments used, the calibrations of instruments or tools, and the final result of the experiment.

Types of Research

Following are the types of research methods:

Basic research: A basic research definition is data collected to enhance knowledge. The main motivation is knowledge expansion. It is a non-commercial research that doesn't facilitate in creating or inventing anything. For example: an experiment to determine a simple fact.

Applied research: Applied research focuses on analyzing and solving real-life problems. This type refers to the study that helps solve practical problems using scientific methods. Studies play an important role in solving issues that impact the overall well-being of humans. For example: finding a specific cure for a disease.

Problem oriented research: As the name suggests, problem-oriented research is conducted to understand the exact nature of a problem to find out relevant solutions. The term "problem" refers to multiple choices or issues when analyzing a situation.

For example, revenue of a car company has decreased by 12% in the last year. The following could be the probable causes: there is no optimum production, poor quality of a product, no advertising, or economic conditions.

Problem solving research: This type of research is conducted by companies to understand and resolve their own problems. The problem-solving method uses applied research to find solutions to the existing problems.

Qualitative research: Qualitative research is a process that is about inquiry. It helps create in-depth understanding of problems or issues in their natural settings. This is a non-statistical method.

Qualitative research is heavily dependent on the experience of the researchers and the questions used to probe the sample. The sample size is usually restricted to 6-10 people. Open-ended questions are asked in a manner that encourages answers that lead to another question or group of questions. The purpose of asking open-ended questions is to gather as much information as possible from the sample.

The following are the methods used for qualitative research:

1. One-to-one interview
2. Focus groups
3. Ethnographic research
4. Content/Text Analysis
5. Case study research

Quantitative research: Qualitative research is a structured way of collecting data and analyzing it to draw conclusions. Unlike qualitative methods, this method uses a computational and statistical process to collect and analyze data. Quantitative data is all about numbers.

Quantitative research involves a larger population — more people means more data. With more data to analyze, you can obtain more accurate results. This method uses close-ended questions because the researchers are typically looking to gather statistical data.

Online surveys, questionnaires, and polls are preferable data collection tools used in quantitative research. There are various methods of deploying surveys or questionnaires.

Online surveys allow survey creators to reach large amounts of people or smaller focus groups for different types of research that meet different goals. Survey respondents can receive surveys on mobile phones, in emails, or can simply use the internet to access surveys.

Descriptive research: Descriptive research usually involves surveys and studies that aim to identify the facts. In other words, descriptive research mainly deals with the “description of the state of affairs as it is at present” and there is no control over variables in descriptive research.

Analytical research: Analytical research, on the other hand, is fundamentally different in a way that "the researcher has to use facts or information already available and analyse these in order to make a critical evaluation of the material".

Applied research and Fundamental research: Applied research is also referred to as an action research, and the fundamental research is sometimes called basic or pure research.

The table below summarizes the main differences between applied research and fundamental research-

S.No	Applied Research	Fundamental Research
01	Tries to eliminate the theory by adding to the basics of a discipline	Aims to solve a problem by adding to the field of application of a discipline
02	Problems are analysed from the point of one discipline	Often several disciplines work together for solving the problem
03	Generalisations are preferred	Often researches individual cases without the aim to generalise
04	Forecasting approach is implemented	Aims to say how things can be changed
05	Assumes that other variables do not change	Acknowledges that other variables are constant by changing
06	Reports are compiled in a language of technical language of discipline	Reports are compiled in a common language

Exploratory Research and Conclusive Research: Exploratory studies only aim to explore the research area and they do not attempt to offer final and conclusive answers to research questions. Conclusive studies, on the contrary, aim to provide final and conclusive answers to research questions.

The table below summarizes the main differences between exploratory research and conclusive research-

Basis	Exploratory Research	Conclusive Research
Structure	Loosely structured in desing	Well structured and systematic in design
Methodology	Are flexible and investigative in methodology	Have a formal and definitive methodology that needs to be followed and tested
Hypotheses	Do not involve testing of hypotheses	Most conclusive researches are carried out to test the formulated hypotheses
Findings	Findings might be topic specific and might not have much relevance outside of researcher's domain	Findings are significant as they have a theoretical or applied implication

Longitudinal Research: Research carried out longitudinally involves data collection at multiple points in time. Longitudinal studies may take the form of:

- *Trend study*- looks at population characteristics over time, e.g. organizational absenteeism rates during the course of a year
- *Cohort study*- traces a sub-population over time, e.g. absenteeism rates for the sales department;
- *Panel study*- traces the same sample over time, e.g. graduate career tracks over the period 1990 – 2000 for the same starting cohort.

While longitudinal studies will often be more time consuming and expensive than cross-sectional studies, they are more likely to identify causal relationships between variables.

Cross-sectional Research: One-shot or cross-sectional studies are those in which data is gathered once, during a period of days, weeks or months. Many cross-sectional studies are exploratory or descriptive in purpose. They are designed to look at how things are now, without any sense of whether there is a history or trend at work.

Steps in Scientific Research

Following are the main steps in social or business research process.

1. Selection of Research Problem
2. Extensive Literature Survey
3. Making Hypothesis
4. Preparing the Research Design
5. Sampling
6. Data collection
7. Data Analysis
8. Hypothesis Testing
9. Generalization and Interpretation
10. Preparation of Report

Selection of Research Problem

The selection of topic for research is a difficult job. When we select a title or research statement, then other activities would be easy to perform. So, for the understanding thoroughly the problem it must have to discuss with colleagues, friend, experts and teachers. The research topic or problem should be practical, relatively important, feasible, ethically and politically acceptable.

Literature Review or Extensive Literature Survey

After the selection of research problem, the second step is that of literature mostly connected with the topics. The availability of the literature may bring ease in the research. For this purpose academic journals, conference and govt. reports and library must be studied.

Making Hypothesis

The development of hypothesis is a technical work depends on the researcher experience. The hypothesis is to draw the positive & negative cause and effect aspects of a problem. Hypothesis narrows down the area of a research and keep a researcher on the right path.

Preparing the Research Design

After the formulation of the problem and creating hypothesis for it, research Design is to prepare by the researcher. It may draw the conceptual structure of the problem. Any type of research design may be made, depend on the nature and purpose of the study. Daring R. Design the information about sources, skill, time and finance is taken into consideration.

Sampling

The researcher must design a sample. It is a plan for taking its respondents from a specific areas or universe. The sample may be of two types:

1. Probability Sampling
2. Non-probability Sampling

Data collection

Data collection is the most important work, is researcher. The collection of information must be containing on facts which is from the following two types of researcher.

Primary Data Collection: Primary data may be from the following.

1. Experiment
2. Questionnaire
3. Observation
4. Interview

Secondary data collection: it has the following categories:

1. Review of literature
2. Official and non-official reports
3. Library approach

Data Analysis

When data is collected, it is forwarded for analysis which is the most technical job. Data analysis may be divided into two main categories.

Data Processing: it is sub-divided into the following.

Data editing, Data coding, Data classification, Data tabulation, Data presentation, Data measurement

Data Exposition: Date Exposition has the following sub-categories.

Description, Explanation, Narration, Conclusion/Findings, Recommendations/Suggestions

Hypothesis Testing

Research data is then forwarded to test the hypothesis. Do the hypothesis are related to the facts or not? To find the answer the process of testing hypothesis is undertaken which may result in accepting or rejecting the hypothesis.

Generalization and Interpretation

The acceptable hypothesis is possible for researcher to arrival at the process of generalization or to make & theory. Some types of research has no hypothesis for which researcher depends upon on theory which is known as interpretation.

Preparation of Report

A researcher should prepare a report for which he has done is his work. He must keep in his mind the following points:

Report Design in Primary Stages

The report should carry a title, brief introduction of the problem and background followed by acknowledgement. There should be a table of contents, grapes and charts.

Main Text of the Report

It should contain objectives, hypothesis, explanations and methodology of the research. It must be divided into chapters and every chapter explains separate title in which summary of the findings should be enlisted. The last section would be clearly of conclusions to show the main theme of the R-study.

Closing the Report

After the preparation of report, the last step in business research process contains of bibliography, references, appendices, index and maps or charts for illustration. For this purpose the information should more clearer.

Research Design

Meaning

A **research design** is the set of methods and procedures used in collecting and analyzing measures of the variables specified in the problem research. Research design is the framework of research methods and techniques chosen by a researcher. The design allows researchers to hone in on research methods that are suitable for the subject matter and set up their studies up for success.

A research design is a broad plan that states objectives of research project and provides the guidelines what is to be done to realize those objectives. It is, in other words, a master plan for executing a research project.

Research design is a broad framework that states the total pattern of conducting research project. It specifies objectives, data collection and analysis methods, time, costs, responsibility, probable outcomes, and actions.

Definition

Several definition of research design has been given by writers on research methodology. A few of them are mentioned here:

Young (1966): "Research design is the logical and systematic planning and directing a piece of research.

Zikmund (2007): "Research design is a master plan specifying the methods and procedures for collecting and analyzing the needed information."
According to the Kelinger, F.N., research design is the plan, structure and strategy of investigation conceived so as to obtain answers to research questions and to control variance. The pan is the overall scheme or program of research. It includes an outline of what the investigator will do from writing the hypotheses and their operational implications to the final analysis of data. The structure of research is more specific. It is the outline, the scheme, and the paradigm of the operations of the variables. Strategy includes the methods to be used to gather

and analyze the data. In other words, strategy implies how the problems encountered in the research will be tackled.

Contents of Research Design

The most common aspects involved in research design include at least followings:

1. Statement of research objectives, i.e., why the research project is to be conducted

2. Type of data needed

3. Definition of population and sampling procedures to be followed

4. Time, costs, and responsibility specification

5. Methods, ways, and procedures used for collection of data

6. Data analysis – tools or methods used to analyze data

7. Probable output or research outcomes and possible actions to be taken based on those outcomes

Characteristics of Good Research Design

Objectivity: An objectivity research design implies to examine the evidence independent of belief, bias, emotions, perception, attitudes, hope and fear of any individual.

Neutrality: When you set up your study, you may have to make assumptions about the data you expect to collect. The results projected in the research design should be free from bias and neutral. Understand opinions about the final evaluated scores and conclusion from multiple individuals and consider those who agree with the derived results.

Reliability: With regularly conducted research, the researcher involved expects similar results every time. Your design should indicate how to form research questions to ensure the standard of results. You'll only be able to reach the expected results if your design is reliable.

Validity: There are multiple measuring tools available. However, the only correct measuring tools are those which help a researcher in gauging results according to the objective of the research. The questionnaire developed from this design will then be valid.

Generalization: The outcome of your design should apply to a population and not just a restricted sample. A generalized design implies that your survey can be conducted on any part of a population with similar accuracy.

Purpose of Research Design

This design is followed to realize following purposes:

1. Clarifying concepts and defining problem

2. Formulating problem for more precise investigation

3. Increasing researcher's familiarity with problem

4. Developing hypotheses

5. Establishing priorities for further investigation

Types of Research Designs

We will classify research studies into sevral categories:

- Exploratory research design
- Descriptive research design
- Historical research design
- Descriptive research design
- Developmental research design
- Survey research design
- Case study research design
- Comparative research design
- Correlation research design
- Causal-comparative research design
- Interventional research design
- True experimental research design
- Quasi-experimental research design
- Qualitative research design

Exploratory Research Design:

An exploratory research is defined as "a study undertaken in areas where very little prior knowledge or information is available on the subject under investigation". It is thus the initial research conducted to study and define the nature of a problem. An exploratory study is

undertaken when we do not know much about the situation at hand. In such cases, extensive preliminary work needs to be dome to gain familiarity with the phenomenon the situation.

Descriptive Research Design:

Descriptive research describes phenomena as they exist. Such studies involve the systematic collection and presentation of data to give a clear picture of a particular situation. These studies attempt to obtain a complete and accurate of situation. These studies can be classified in the following five categories: (a) historical, (b) descriptive, (c) developmental, (d) survey, and (e) case studies.

Historical Research Design:

Historical research is concerned with past phenomena. It can be defined as "the systematic and objective location, evaluation, and synthesis of evidence in order to establish facts and draw conclusions about past events." Historical research is thus a process of collection, evaluating, verifying, and synthesizing past evidence systematically and objectively to reach a conclusion.

Descriptive Research Design:

Descriptive research is a fact- finding operation searching for adequate information; it is a type of study, which is generally conducted to assess the opinions, behaviors, or characteristics of a given population and to describe the situation and events occurring at present. Descriptive research is a process of accumulating facts. It does not necessarily seek to explain relationships, test hypotheses, make predictions or get at meanings and implications of a study. Descriptive research can either quantitative or qualitative. This research involves gathering data that describes events and then organizes, tabulates, depicts, and describes the data collection. Descriptive statics is used to reduce the data to manageable form.

Developmental Research Design:

Developmental research is conducted for the purpose of predicting future trends. It concentrates on the study of variables, their rates of change, directions, sequences and other inter-related factors over a period of time. Developmental research focused on the study of variables and their development over a period of months or years. It asks, "What are the patterns of growth, their rates, their directions, their sequences, and the interrelated factors affecting these characteristics?"

Survey Research Design:

A survey is a means of gathering information about the characteristics, actions, or opinions of a large group of people, referred to as a population. A survey research is thus defined as "the systematic gathering of information from respondents for the purpose of understanding and/or predicting some aspect of the behavior of the population of interest" (Tull & Hawkins, 1997, p.

164). A survey study is perhaps the dominant form of data collection in social science, today. If conducted scientifically, this type of research can contribute to the advance of knowledge.

Case Study Research Design:

Case study research is an important approach to study the topics in social science and management. Case studies are written summaries or synthesis of real-life cases based upon data and research. A case study is thus defined as "a strategy for doing research which involves on empirical investigation of a particular contemporary phenomenon within a real-life context." Rather than using samples to examine a limited number of variables, case study methods involve in in-depth longitudinal examination of a single instance or event. This research thus views a social or study unit as a whole in its real-life context. This study phenomenon could be a person, a family, a social group, an institution, a community, or even an entire culture.

Comparative Research Designs:

A comparative study attempts to establish causes for certain problem. This is done by comparing two or more groups of situation or variables. Comparative studies can be classified into two categories: correlation and causal-comparative research.

Correlation Research Design:

Correlation research is used to obtain descriptions of phenomena. This technique is used to ascertain the extent to which two variables are related. In a correlation relationship, changed in one variable accompany changes in another, but the proper tests have not been conducted to show that either variable actually influences the other. Thus, all that is known is that a relationship between them exists. When changes in one variable tend to be accompanied by specific changes in another, two variables are said to co vary.

Causal-Comparative Research Design:

Studies that establish causal relationships between variables may be termed explanatory studies. This research investigates the possible causes affecting a particular situation by observing existing consequences and searching for the possible factors leading to these results. The emphasis is thus on studying a situation or problem in order to explain the relationships between two variables. This research is also known as 'ex post facto' (Latin for "after the fact") research. This is because both the effect and the alleged causes have already occurred and must be studied in retrospect.

Interventional Research Designs:

In international research studies, the researcher intervenes and manipulated a situation to measure the effects of the manipulation. Usually (but not always) two groups are compared, one in which the intervention takes place. Discovering causal relationships is the key to experimental research. The goal is to establishing cause-and-effect relationships between variables.

Experimental research thus provides the vest method possible to examine a cause and effect situation.

True Experimental Research Design:

The true experimental research is defined as "a situation in which a researcher objectively observes phenomenon which is made to occur in a strictly controlled situation where one or more variables are valid and the others are kept constant". Hence, an experiment is a test of a causal proposition. Experimental research is familiar to most of us as the test- tube research conducted in a laboratory by a scientist wearing a white smock. Scientists are conducting experimental research when they put exactly the same materials into two tests –tubes and then add one new ingredient to only none of the original tubes. After the new ingredient is added to one tube, the changes that take place in that tube are measured.

Quasi-experimental Research Design:

When an experimental method is used to solve problem, it is the most respected mean of obtaining reliable knowledge. The word "quasi" means as if or almost. Hence, a quasi-experiment means almost a true experiment. As with true experimental research, the goal of quasi-experimental research is to test cause and effect by observing how subjects react to phenomena.

Sampling Techniques

There are lot of sampling techniques which are grouped into two categories as

- Probability Sampling
- Non- Probability Sampling

Probability Sampling Methods

This Sampling technique uses randomization to make sure that every element of the population gets an equal chance to be part of the selected sample. It's alternatively known as random sampling.

1. Simple Random Sampling: Every element has an equal chance of getting selected to be the part sample. It is used when we don't have any kind of prior information about the target population.

For example: Random selection of 20 students from class of 50 student. Each student has equal chance of getting selected. Here probability of selection is 1/50

2. Stratified Sampling

This technique divides the elements of the population into small subgroups (strata) based on the similarity in such a way that the elements within the group are homogeneous and heterogeneous among the other subgroups formed. And then the elements are randomly selected from each of these strata. We need to have prior information about the population to create subgroups.

3. Cluster Sampling

Our entire population is divided into clusters or sections and then the clusters are randomly selected. All the elements of the cluster are used for sampling. Clusters are identified using details such as age, sex, location etc.

Cluster sampling can be done in following ways:

· **Single Stage Cluster Sampling**

Entire cluster is selected randomly for sampling.

· **Two Stage Cluster Sampling**

Here first we randomly select clusters and then from those selected clusters we randomly select elements for sampling

4. Systematic Clustering

Here the selection of elements is systematic and not random except the first element. Elements of a sample are chosen at regular intervals of population. All the elements are put together in a sequence first where each element has the equal chance of being selected.

For a sample of size n, we divide our population of size N into subgroups of k elements.

We select our first element randomly from the first subgroup of k elements.

To select other elements of sample, perform following:

We know number of elements in each group is k i.e N/n

So if our first element is n1 then

Second element is n1+k i.e n2

Third element n2+k i.e n3 and so on..

Taking an example of N=20, n=5

No of elements in each of the subgroups is N/n i.e 20/5 =4= k

Now, randomly select first element from the first subgroup.

If we select n1= 3

n2 = n1+k = 3+4 = 7

n3 = n2+k = 7+4 = 11

5. Multi-Stage Sampling

It is the combination of one or more methods described above. Population is divided into multiple clusters and then these clusters are further divided and grouped into various sub groups (strata) based on similarity. One or more clusters can be randomly selected from each stratum. This process continues until the cluster can't be divided anymore. For example country can be divided into states, cities, urban and rural and all the areas with similar characteristics can be merged together to form a strata.

Non- Probability Sampling Methods

It does not rely on randomization. This technique is more reliant on the researcher's ability to select elements for a sample. Outcome of sampling might be biased and makes difficult for all the elements of population to be part of the sample equally. This type of sampling is also known as non-random sampling.

1. Convenience sampling

Convenience sampling is perhaps the easiest method of sampling, because participants are selected based on availability and willingness to take part. Useful results can be obtained, but the results are prone to significant bias, because those who volunteer to take part may be different from those who choose not to (volunteer bias), and the sample may not be representative of other characteristics, such as age or sex. Note: volunteer bias is a risk of all non-probability sampling methods.

2. Quota sampling

This method of sampling is often used by market researchers. Interviewers are given a quota of subjects of a specified type to attempt to recruit. For example, an interviewer might be told to go out and select 20 adult men, 20 adult women, 10 teenage girls and 10 teenage boys so that they

could interview them about their television viewing. Ideally the quotas chosen would proportionally represent the characteristics of the underlying population.

Whilst this has the advantage of being relatively straightforward and potentially representative, the chosen sample may not be representative of other characteristics that weren't considered (a consequence of the non-random nature of sampling).

3. Judgment (or Purposive) Sampling

Also known as selective, or subjective, sampling, this technique relies on the judgment of the researcher when choosing who to ask to participate. Researchers may implicitly thus choose a "representative" sample to suit their needs, or specifically approach individuals with certain characteristics. This approach is often used by the media when canvassing the public for opinions and in qualitative research.

Judgment sampling has the advantage of being time-and cost-effective to perform whilst resulting in a range of responses (particularly useful in qualitative research). However, in addition to volunteer bias, it is also prone to errors of judgment by the researcher and the findings, whilst being potentially broad, will not necessarily be representative.

4. Snowball sampling

This method is commonly used in social sciences when investigating hard-to-reach groups. Existing subjects are asked to nominate further subjects known to them, so the sample increases in size like a rolling snowball. For example, when carrying out a survey of risk behaviours amongst intravenous drug users, participants may be asked to nominate other users to be interviewed.

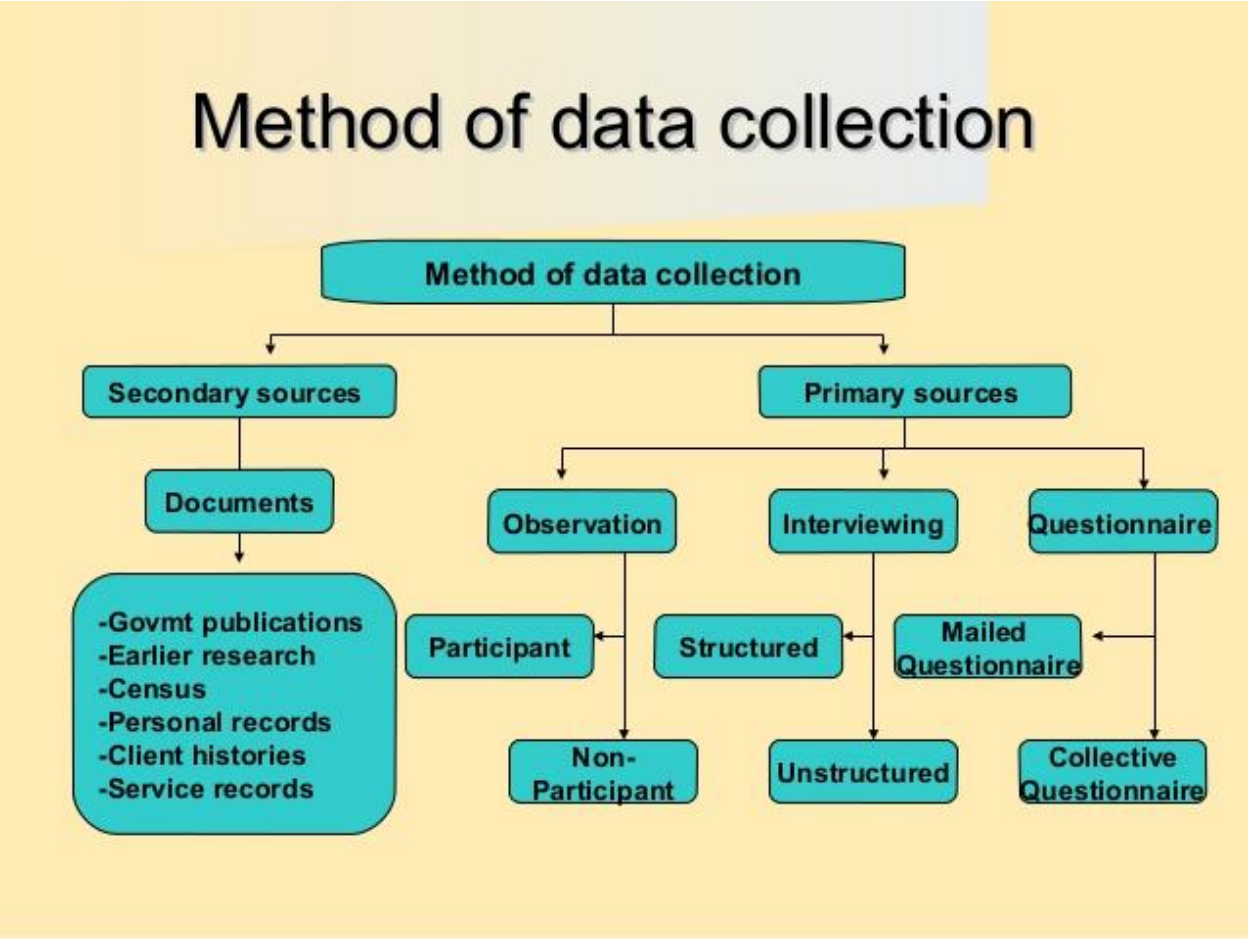
Snowball sampling can be effective when a sampling frame is difficult to identify. However, by selecting friends and acquaintances of subjects already investigated, there is a significant risk of selection bias (choosing a large number of people with similar characteristics or views to the initial individual identified).

Data Collection Methods

Data collection is a process of collecting information from all the relevant sources to find answers to the research problem, test the hypothesis and evaluate the outcomes. Data collection methods can be divided into two categories: secondary methods of data collection and primary methods of data collection.

Data collection is defined as the "process of gathering and measuring information on variables of interest, in an established systematic fashion that enables one to answer queries, stated research questions, test hypotheses, and evaluate outcomes."

Data collection methods can be divided into two categories: secondary methods of data collection and primary methods of data collection.



Primary Data Collection Methods

Primary data are original observations collected by the researcher or his agent for the first time for any investigation and used by them in the statistical analysis. The primary data is the one type of important data. It is collection of data from first hand information. This information published by one organization for some purposes. This type of primary data is mostly pure and original data.

The primary data collection is having three different data collection methods are:-

1. Observation:

Observation method has occupied an important place in descriptive sociological research. It is the most significant and common technique of data collection. Analysis of questionnaire responses is concerned with what people think and do as revealed by what they put on paper. The

responses in interview are revealed by what people express in conversation with the interviewer. Observation seeks to ascertain what people think and do by watching them in action as they express themselves in various situations and activities.

Observation is the process in which one or more persons observe what is occurring in some real life situation and they classify and record pertinent happenings according to some planned schemes. It is used to evaluate the overt behaviour of individuals in controlled or uncontrolled situation. It is a method of research which deals with the external behaviour of persons in appropriate situations.

2. Interview:

Interview as a technique of data collection is very popular and extensively used in every field of social research. The interview is, in a sense, an oral questionnaire. Instead of writing the response, the interviewee or subject gives the needed information verbally in a face-to-face relationship. The dynamics of interviewing, however, involves much more than an oral questionnaire.

Interview is relatively more flexible tool than any written inquiry form and permits explanation, adjustment and variation according to the situation. The observational methods, as we know, are restricted mostly to non-verbal acts. So these are understandably not so effective in giving information about person's past and private behaviour, future actions, attitudes, perceptions, faiths, beliefs thought processes, motivations etc.

3. Schedule:

Schedule is one of the very commonly used tools of data collection in scientific investigation. P.V. Young says "The schedule has been used for collection of personal preferences, social attitudes, beliefs, opinions, behaviour patterns, group practices and habits and much other data". The increasing use of schedule is probably due to increased emphasis by social scientists on quantitative measurement of uniformly accumulated data.

Schedule is very much similar to questionnaire and there is very little difference between the two so far as their construction is concerned. The main difference between these two is that whereas the schedule is used in direct interview on direct observation and in it the questions are asked and filled by the researcher himself, the questionnaire is generally mailed to the respondent, who fills it up and returns it to the researcher. Thus the main difference between them lies in the method of obtaining data.

4. Questionnaire:

Questionnaire provides the most speedy and simple technique of gathering data about groups of individuals scattered in a wide and extended field. In this method, a questionnaire form is sent usually by post to the persons concerned, with a request to answer the questions and return the questionnaire.

According to Goode and Hatt "It is a device for securing answers to questions by using a form which the respondent fills in himself. According to GA. Lundberg "Fundamentally the questionnaire is a set of stimuli to which illiterate people are exposed in order to observe their verbal behaviour under these stimuli".

5. Projective Techniques:

The psychologists and psychiatrists had first devised projective techniques for the diagnosis and treatment of patients afflicted by emotional disorders. Such techniques are adopted to present a comprehensive profile of the individual's personality structure, his conflicts and complexes and his emotional needs. Adoption of such techniques is not an easy affair. It requires intensive specialized training.

The stimuli applied in projective tests may arouse in the individuals, undergoing the tests, varieties of reaction. Hence, in projective tests the individual's responses to the stimulus situation are not considerate at their face value because there are no 'right' or 'wrong' answers. Rather emphasis is laid on his perception or the meaning he attaches to it and the way in which the endeavors to manipulate it or organizes it.

6. Case Study Method:

According to Biesanz and Biesenz "the case study is a form of qualitative analysis involving the very careful and complete observation of a person, a situation or an institution." In the words of Goode and Hatt, "Case study is a way of organizing social data so as to preserve the unitary character of the social object being studied." P.V. young defines case study as a method of exploring and analyzing the life of a social unit, be that a person, a family, an institution, cultural group or even entire community."

In the words of Giddings "the case under investigation may be one human individual only or only an episode in first life or it might conceivably be a Nation or an epoch of history." Ruth Strong maintains that "the case history or study is a synthesis and interpretation of information about a person and his relationship to his environment collected by means of many techniques."

7. Delphi Technique:

It is a forecasting technique wherein the researcher elicits the information from the panel of experts either personally or through a questionnaire sent through the mail. Here, each expert in his respective field is asked to give their opinions on the problem concerned and the consolidated view of all is used to reach for the most accurate answer.

8. Focus Group Interview:

It is one of the widely used data collection methods wherein a small group of people, usually 6-12 members come together to discuss the common areas of the problem. Here each individual is required to provide his insights on the issue concerned and reach to a unanimous decision. In this interview, there is a moderator who regulates the discussion among the group members.

Secondary Data Collection Methods

The secondary data is the other type of data, which is collection of data from second hand information. This information is known as, given data is already collected from any one persons for some purpose, and it has available for the present issues. And mostly these secondary data's are not relevant and pure or original data.

Secondary data is a type of data that has already been published in books, newspapers, magazines, journals, online portals etc. There is an abundance of data available in these sources about your research area in business studies, almost regardless of the nature of the research area. Therefore, application of appropriate set of criteria to select secondary data to be used in the study plays an important role in terms of increasing the levels of research validity and reliability.

These criteria include, but not limited to date of publication, credential of the author, reliability of the source, quality of discussions, depth of analyses, the extent of contribution of the text to the development of the research area etc.

These data's can be collected from the following places:-

1. a) Official
2. b) Newspapers and journals
3. c) Research organizations like universities.

Secondary sources are data that already exist

- Previous research
- Official statistics
- Mass media products
- Diaries
- Letters

- Government reports
- Web information
- Historical data and information

There are several external sources from where the secondary data can be collected. These are:

- Government censuses, like the population census, agriculture census, etc.
- Information from other government departments, like social security, tax records, etc.
- Business journals
- Social Books
- Business magazines
- Libraries
- Internet, where wide knowledge about different areas is easily available.

The secondary data can be both qualitative and quantitative. The qualitative data can be obtained through newspapers, diaries, interviews, transcripts, etc., while the quantitative data can be obtained through a survey, financial statements and statistics.