

Unit-1**Scientific Method**

There is no short cut to truth.. No way to gain knowledge of the universe, except through the gate way of Scientific Method. – Karl Pearson

Objectives:

This Unit is planned to create awareness among the students

1. That Science goes with the method and not material
2. That Scientific method can be meaningfully adopted to legal research
3. That Science is not alienated from the values
4. That theory and fact are not opposed to each other they are supplementary to each other
5. The concepts research, variable , methods and methodology and other definitions

Structure

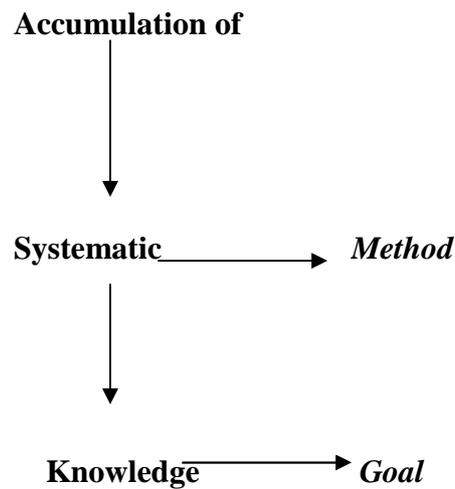
- 1.1 Introduction
- 1.2 Definition of Science
- 1.3 Theory and fact
- 1.4 Features of scientific method
- 1.5 Applicability of scientific method to legal research
- 1.6 Stages of scientific method
- 1.7 Concepts
- 1.8 Summary
- 1.9 Self assessment questions
- 1,10 Further readings

1.1 Introduction:

Science guards against untested assumptions about the world we live in. Science proceeds on the premise that it is better to know than not to know and knowledge is better than ignorance. Science aims at bringing out the truth, unbiased and without fear or favour. Science is not merely confined to pure sciences. Science is an approach. Science goes with the method and not material. It is not ‘what’ accomplishes, but ‘how’ it is accomplished. Thomas Huxley observed “*Science is a trained and organized common sense.*” Albert Einstein stated that *the whole science is nothing more than a refinement of every day thinking.*

1.2. Definition of Science:

The very definition of research is described as *systematic* pursuit of new knowledge. The word *systematic* goes with the science. According to Goode and Hatt defines, *Science is accumulation of scientific knowledge*. Lastrucci says “ Science is an objective, logical and systematic method of analysis of phenomena devised to permit the accumulation of reliable knowledge.



Thus, Science is
An approach

- provides a frame work within which a theory is tested

Aims at theory

- theory is the product of scientific research

Is cumulative

- builds on the works preceding it

Has transmissibility

- has no barriers of geography, languages or political systems etc.

*gives scope for replicability
and verifyability*

- can be repeated number of times and verified

establishes causal relationship

- provide “if – then” frame work; gives scope for scientific propositions (hypothesis) & predictability

has parsimonious effect

- explains as much as possible with fewer propositions

1.3 Theory and fact:

There is a misconception that science deals only with facts and not concerned about theory which is always a speculation. This is not true. A fact is regarded as empirically verifiable observation and theory refers to relationships between the facts (Goode and Hatt). It may be noted that the facts are productive of theory, in the sense that facts help to initiate theory; they lead to reformulation of existing theory; they cause the rejection of the theory which does not fit the facts; they change the focus and orientation of theory and they clarify and redefine theory.(ibid)

On the other hand, according to Goode and Hatt, theory defines major orientation of a science by providing the parameters of the data required; it provides conceptual scheme by which relevant phenomena is systematized, classified and interrelated; it summarizes facts; it predicts facts and points out the gaps in our knowledge.

It is also not true to say that science and values are opposed to each other. At times science involves in value judgment and ethic based assertions like knowledge is better than ignorance. Starting from selection of problem, motivation behind, application of the results etc are always governed by values. Science itself has its own metaphysics, though objectivity is assured and it is the only way to arrive at empirical truth. H.A. Cantril says that scientific data may become inert and meaningless without values. Sir Francis Bacon asserts that a true scientist should possess both compassion and understanding, since knowledge without charity could bite with deadliness of a serpent's venom. Science is essentially a means to an end.

Scientist always should have *scientific attitude*. As observed by Pauline.V. Young a scientific attitude is more than “objective”, “dispassionate,” “unbiased” devotion to collection and treatment of facts. A scientist avoids personal and vested interest. According to Wolfe the scientific attitude rests upon one and only one fundamental article of faith – faith in universality of cause and effect. Causation in terms of impersonal, phenomenal correlation and sequence is the essence of *scientific inquiry*. Science is deterministic.

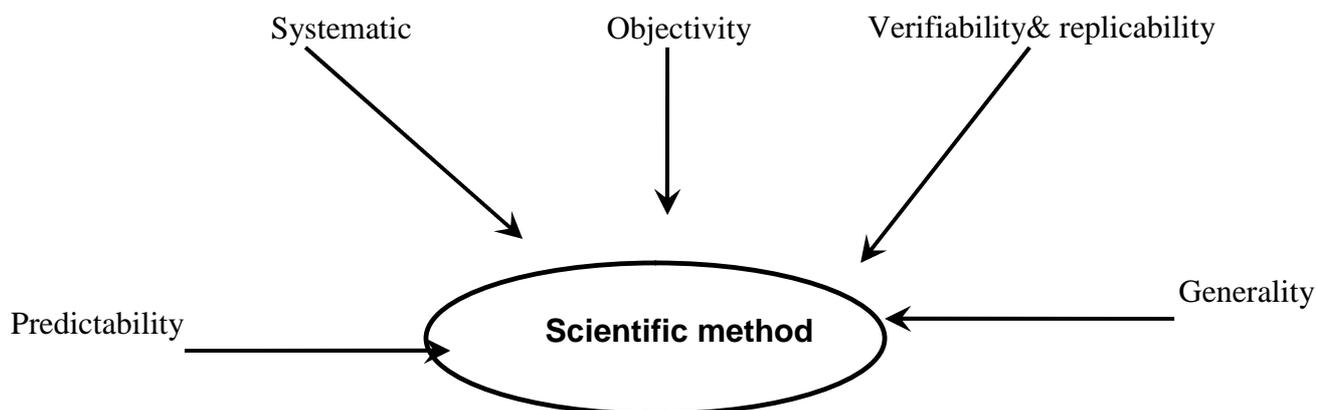
According to Dewey scientific attitude is linked with an ardent curiosity, fertile imagination, and love of experimental inquiry.

It is also necessary to control errors that arise because of several factors. *Particularistic fallacy* arises due to generalizations based upon insufficient, incomplete or unrelated data (W.I. Thomas). Francis Bacon refers to errors arising out of three *false idols*. The idol of the cave refers to errors due to narrow and isolated thinking characteristic of the given person alone, or experiences which one has had that no one else knows any thing about. Idols of the forum refers to undue reliance on the words, phrases and the language. The idols of the tribe arise due to one's human or anthropomorphic ways of looking at the things.

1.4 Features of Scientific method:

As noted earlier science goes with the method not with the material. Any branch of inquiry to be called as science should follow a systematic logical, impersonal method. Karl Pearson observes, *the scientific method is marked by careful and accurate classification of facts and observation of their correlation and sequence; the discovery of scientific laws by aid of the creative imagination; self criticism and the final touch stone of equal validity for all normally constituted minds.* According to Lundberg, *scientific method consists of systematic observation, classification and interpretation of data. The main difference between our day to day generalization and the conclusion usually recognized as scientific method lies in the degree of formality, vigorousness, verifiability and general validity of the latter.*

The following diagram gives you the characteristics of scientific method.



1.5. Applicability of scientific method to legal research:

There exists a misconception that there are certain limitations for applying Scientific method as under.

- ❖ *Human behaviour changes too much from one period to the next to permit scientific, exact predictions.*
- ❖ *Human behaviour is too elusive, subtle and complex to yield to the rigid categorization and artificial instruments of science.*
- ❖ *Human behaviour can be studied only by other human observations and these always distort fundamentally the facts being observed, so that there can be no objective procedures for achieving the truth.*
- ❖ *Human beings who are the subjects of such predictions and have the ability deliberately to upset any predictions we make.*
- ❖ *Physical phenomena is different from social or legal phenomena*

The same reasons are quoted for legal research. On proper analysis one would find that the scientific method can be meaningfully applied to socio-legal research if appropriate care is taken proper indicators are developed.

Law can never be $E=mc^2$. Perfect, absolute mathematical niceties may not be possible in all the cases. But one can reach near perfection by adopting suitable methods and methodology. Even the judicial behaviour is subject to legal research by adopting jurimetrics methods as laid by Lewlyn.

1. **Verifiability:** It is viewed that verifiability is not assured as the concept of indicators vary from place to place, country to country. For example if it is proved that rate of criminality is directly proportional to urbanization/illiteracy / poverty, the concept or definition of crime, urbanization, poverty vary from country to country. Adultery is a crime in India and only a tort in England. Where as in pure sciences MnO_2 is MnO_2 any where. However, it is to be noted that broad generalizations always hold good even though variable have different connotations. Hence, verifiability is not effected. That rate of criminality is directly proportional to poverty may hold good in any country though the parameters of crime or poverty vary from place to place.
2. **Generality:** Another objection that is raised is that in view of heterogeneity of the phenomena and legal complexity objectivity is affected. No two persons will be alike; no two disputes will be alike. The data collected will always be complex because of psychological and temperamental factors. It is not always true. Given the standardization of tools of research which allow cross verification complexity and heterogeneity can be over come. Even though no two persons will be alike and no two disputes will be alike there will be a basic element of commonality and similarity. Other wise the whole system of regulation through law is a wasteful exercise. One needs to have separate law for each individual.
3. **Unpredictability:** Human behaviour is unpredictable. In the same situation human beings behave differently. It also true that the same person in similar situations act differently. But by and large the societal requirements can be gauged by the sociologists and suggest planning. Legal research can be used to diagnose the societal maladies and suggest policy changes. It can generate change, it can adopt itself to the changing needs and legal research facilitates the same. Law amply covers behavioural changes that manifest in the human beings.
4. **Objectivity:** It is often criticized that subjectivity is the hall mark of socio-legal phenomena. It is to be noted that objectivity can be achieved and is achieved in legal research. The researches based on judicial activism develop such methods where personal impressions are minimized. Scales have been developed to minimize the subjective elements. Projective techniques are being used to guage inner feelings.

5. Systematic: Systemic errors can also be minimized in legal research both in technical aspects and logical aspects by providing for checks and balances. If the investigation is as per the accurate design the results will be objective. It is a misconception to state that legal research is only qualitative and scientific method is bothered about quantitative analysis. Quantifying qualitative things is a developed technique and it is also experienced that by applying appropriate techniques even experimental design can be developed for legal research. One thing that is required for research is that it should have cause and effect form

1.6. Stages of Scientific Method: According to Pauline.V. Young the phases of scientific procedure includes

- Precise formulation of the problem in question
- Formulation of working or exploratory hypothesis
- Observation and exploration of the problem by variety of scientific techniques
- Uniform recording of the data obtained
- Classification of the data into series and/or sequences;
- Scientific generalizing.

1.7 Concepts:

All progress is born of inquiry. Doubt is often better than over confidence, for it leads to inquiry, and inquiry leads invention.

-Hudson

1. Definition of Research:

Research in general is termed as search for knowledge. Its etymological meaning is “to search”, “to go round in circle”.

Encyclopaedia Britannica (1911) defines research “the act of searching into a matter closely and carefully, inquiry directed to the discovery of truth and in particular the trained scientific investigation of the principles and facts of any subject based on original and first hand study of authorities or experiment.

According to Pauline V. Young social research may be defined as a scientific undertaking which by means of logical and systematized techniques, aims to: 1. discovery of new facts or verify and test old facts; 2. analyse their sequences, interrelationships and causal explanations which were derived within an appropriate theoretical frame reference; 3. develop new scientific tools, concepts and theories which would facilitate reliable and valid study of human behavior.”

The Advanced Learner's Dictionary of Current English defines it as "a careful investigation or inquiry specially through search for new facts in any branch of knowledge".

According to Redman and Mory it is "a systematized effort to gain new knowledge.

Clifford Woody maintain that research comprises defining and redefining problems, formulating hypothesis or suggested solutions; collecting, organizing and evaluating data; making deductions and reaching conclusions; and at last carefully testing the conclusions to determine whether they fit the formulating hypothesis."

Encyclopaedia of social sciences define research as "the manipulation of things, concepts or symbols for the purpose of generalising to extend, correct or verify knowledge, whether that knowledge aids in construction of theory or in the practice of an art".

2.The aims and objectives of research:

According to Runkel and Mc Grath(1972), "the aim of research is to gain knowledge and knowledge is inherently a social commodity to be shared and used."

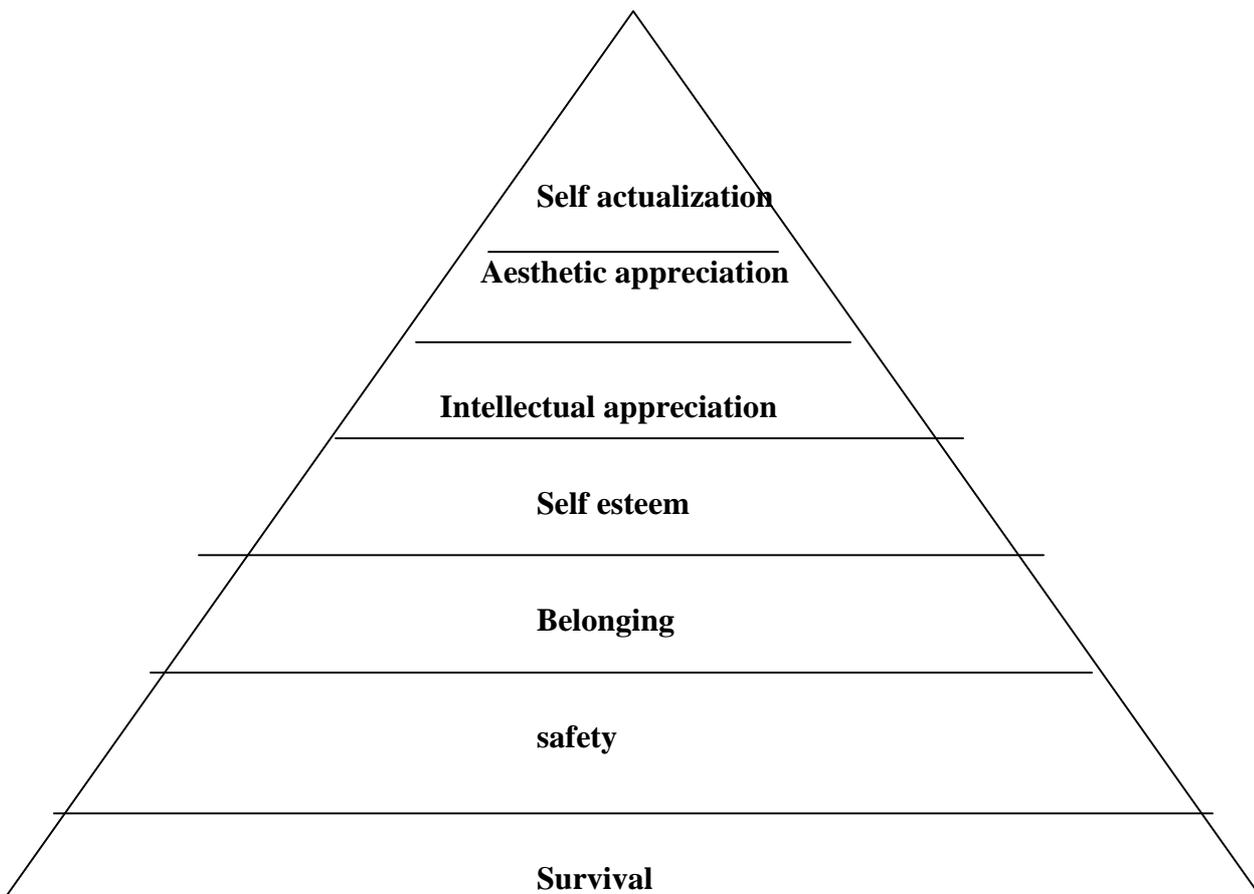
The aim is to extend the frontiers of knowledge and to bring about increase in the existing knowledge.

- ❖ *to get familiarity with the phenomena*
- ❖ *to get insights in to the subject matter*
- ❖ *to describe the characteristics of a chosen phenomena*
- ❖ *diagnosing the frequency at which a phenomena occurs*
- ❖ *testing the hypothesis relating to causal relationship*

are few among the endless objectives of a research.

3. Motivation for Research:

Motivation is a process of arousing, maintaining and controlling researcher's interest in a certain activity. It is something extra that energises and directs the behaviour of a researcher. It involves initiation, moving towards the goal of research and persistence and perseverance in reaching that goal. Abraham Maslow's model of hierarchy of needs fairly fits into research field also.



To be specific about the research activity one can say that at the base of his/ her motivation it is the desire to get the academic degree to get the consequential benefits. Next in the upper ladder comes, challenge of solving the unsolved problems, creative and intellectual joy, service to the society desire to get respectability etc.

4. Kinds of research:

The research works are variedly classified based upon their nature, purpose and methods.

1. Doctrinaire and empirical research
2. Descriptive and analytical research
3. Fundamental and applied research
4. Qualitative and quantitative research
5. Field research and Laboratory research
6. Historical research
7. Exploratory research
8. Diagnostic research

The list is not exhaustive. The classification is also not exclusive but overlapping.

Doctrinaire research is related to developing the new or modifying or testing the existing concepts, abstract ideas or theories. On the other hand **empirical research** is based on the data collected as a sequel to experience or systematized observation. It proceeds on a testable hypothesis, involves in manipulation of one or the other variables in order to get desired results.

Descriptive research is a description of the existing things or phenomena. The researcher's role here will to report what exists. He has no control over nor desirous of manipulating the variables. Surveys and fact finding enquiries fall under this type. They are mostly the *Ex post facto* studies. Whereas **analytical research** involves in critical appraisal of given information or material.

Fundamental research is also known as 'basic' or 'pure research' which are concerned with broad generalizations and formulation of theory. They proceed on the basic premise of 'theory for theory sake' and aim at accumulating the knowledge. Research studies concerning human behavior or phenomena to make generalizations come under this category. Whereas **applied research** aims at using research findings to find solutions to the societal problems. It may be with regard to an organization, industry a particular slice of the society.

Quantitative research as the name itself suggests refers to the research based on measured data. It is applied to the phenomena that can be quantified. On the other hand the **qualitative research** refers to the studies of behaviour, underlying motives, attitudes and opinions etc. In fact they are the approaches to the research. It may be noted that the these subjective things may appropriately put on scale that can be developed for that purpose and even the qualitative things can, thus, be quantified.

Field research is carried in the place where data is to be collected about the things or phenomena. **Laboratory research** is carried in a simulated circumstances manipulating one or the other variable.

The other types of research noted above are variations of the discussed ones.

5. Research method and methodology:

Students often confuse between Research method and research methodology.

Research method is often used synonymous with research techniques that are used for research work. Research method refers to the behaviour or instruments used in conducting the research and refers to "What" one will be using. Techniques refers to "performance" of that method used. Methods and techniques are chosen for collection of data, establishing relationship between the data and unknown phenomena and to evaluate the accuracy of the results achieved. On the other hand research methodology refers to the "way" the researcher goes in his work. Research methodology refers not only to research methods and techniques used but gives an account of "why" a particular method is used in preference to others in reaching the desired

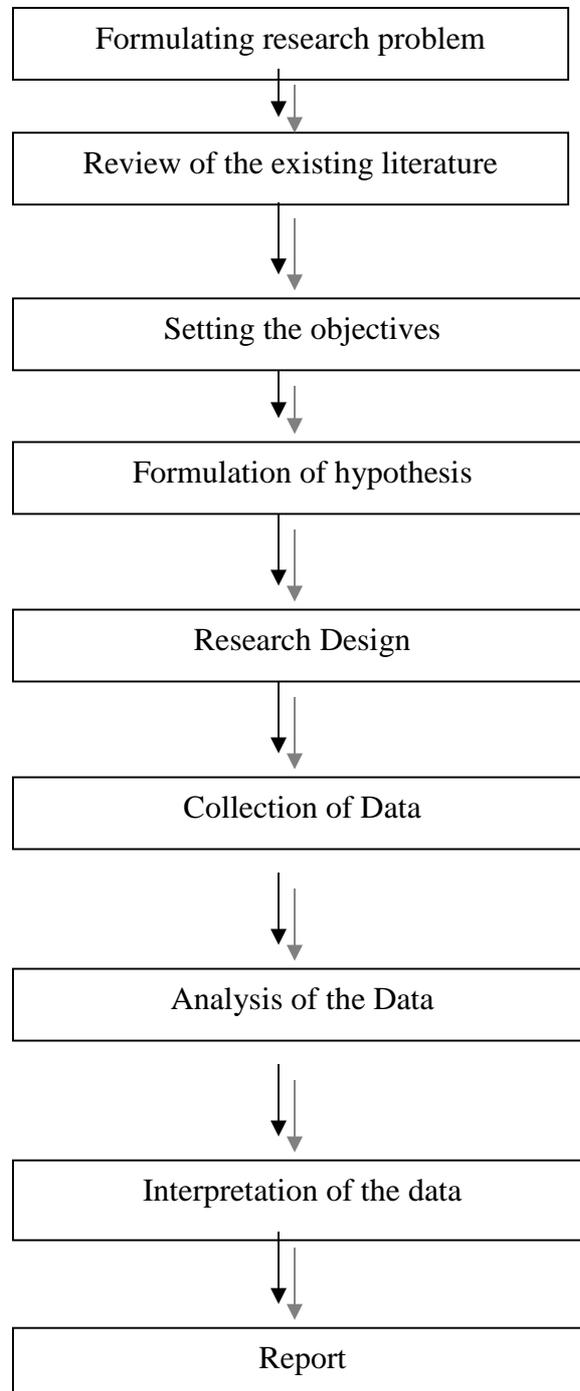
goals of research and “how” the researchers prefers to go about his research work using these methods and techniques. Hence it requires proper designing.

6. What is a Variable ?:

Research of a socio legal phenomena does not occur in vacuum. It occurs in a given situation. Things are being influenced by several factors and they are shaped and reshaped and evoked and emitted. Stimulus-response-subject all will have a flux of interaction. Each one varies based upon the given situation. Height, weight, income etc., all vary. A variable, thus, is one that varies. According to Edwards, “ a variable is any thing that we can observe. Any particular observation is called a value of the variable.” Kerlinger observes that a variable is a property that takes on different values and is a symbol for which numerals or values are assigned. The variables are referred as under.

1. **Dependent variable and independent variable:** for eg. If it is stated that height changes with age, the height is dependent upon age. Thus height is dependent variable, varies based upon age and height is independent variable. Dependent variable is a response variable and independent variable is stimulus variable. In establishing causal relationship, $y=f(x)$, one variable is dependent variable and the other is independent variable.
2. **Continuous and discrete variables:** A continuous variable is that which can assume any numerical value within a specific range is called continuous variable. Time is continuous variable, age is continuous variable. It is also defined as a quantitative variable which can be measured with an arbitrary degree of fitness.(D’Amato). It is a phenomena which can take quantitatively different values even in decimal points are called continuous variable. A discrete variable is a variable for which the individual values fall on the scale only with distinct gaps. The variables that can only be expressed in integer values are called discrete variables. For ex: number of males and females or family sizes. They can not be expressed as 10.5, 9.5 and the like in fractions.
3. **Qualitative variable and quantitative variable:** A variable whose value can not be measured in respect of their magnitude is called qualitative variable. For ex: sex, religious affiliation etc. They are also known as categorized variables. A quantitative variable is one that can be measured based upon the magnitude. For Ex; wages, age, temperature etc.
4. **Stimulus-subject-response variables:** A variable that influence the behaviour of the subject matter is called stimulus variable. The situational variables that cause such change in the subject matter is also termed as stimulus variable. The subject variable is the phenomena or organism whose behaviour is under observation is subject variable. The subject matter will have certain inherent attributes, direct or indirect; latent or patent. Stimulus variable tries to cause by manipulation of the investigator a change to get desired values. Response variable is the behaviour of that subject which is under observation.

7. Research process



1.8. Summary:

Any research study should necessarily be proceeded with systematically and cannot be alienated from the scientific method of investigation whether it is a pure science or legal research. The stress is on the method of doing the things, rather than material. One should also note that the research is not merely for arriving at truth. It should be useful to the society and values are inherent in such search. John Madge rightly observes “... *science is concerned not merely to formulate knowledge but to do something with it. According to some, all facts are potentially of equal worth, and their value lies in their accuracy or their truth rather than in their applicability to the problems of the world. This is a philosophy of empty plenty to which many will find it impossible to subscribe.*”

A good research ought to be a systematic pursuit with logical reasoning and an unbiased venture. Empirical research related to the problems one lives in helps the molding of policies for the benefit of the society. However, lack of proper training in the methods and methodology of research, lack of wide interaction between the people concerned, lack of publicity of the results of the research, overlapping and simultaneous research in the same field, lack of human and financial resources, biased attitude of the researcher and the like undermine the research and fruits of the same are not fully realized. Thus it requires improvement in the aspects noted.

1.8 Self assessment questions:

1. What is Scientific Method? Is legal research amenable to Scientific Method?
2. Examine the inter relationship theory and fact.
3. What is Science? What are its features?
4. Explain Scientific method. What are the various steps in the Scientific Method? *Define research. What are the various kinds of research?*
5. *What is the significance of research? What are its motivating factors?*
6. *What is a variable? Explain various types of variables*
7. *Draw & explain the flow chart of the research*

1.9 Further Readings:

1. Young, Pauline V., *Scientific Social Surveys and Research*, (1982, Printice Hall Int.,New Delhi,4th Edn.)
2. Goode J. William and Hatt, Paul K, *Methods in Social Research* (1981, McGraw-Hill Int.)

Unit-2

Research Problem

A well set problem is half solved

Objectives:

This lesson is planned to give the student the tips to go about the first step in the research i.e., formulation of research problem. Before any research is attempted the researcher should be able to articulate clearly the problem. Thus this lesson aims at

- making the student aware how research problem is formulated
- giving guide lines to present the problem properly
- presenting the criteria minimal for a research problem
- listing various steps to select and formulate the research problem
- giving a brief sketch of sources of data

Structure:

- 2.1 Introduction
- 2.2 Definition of Research Problem
- 2.3 Determination of Research Problem
- 2.4 Steps in the selection and formulation of Research Problem
- 2.5 Sources of data
- 2.6 Self assessment questions
- 2.7 Further reading

2.1. Introduction:

Selecting the research problem is the first and important step in executing the research work. Such setting of the problem may not be necessary for exploratory or formative researches where the research work does not start with the formulation of the problem and such studies often precede the setting up of problem. They do not have hypothesis as well. However, in other forms of research it is logical that the researcher must know **what** is that he wants to do. Otherwise, the whole work would be a wandering in darkness without having any goals. After all research is for reaching the desired goal. Thus setting of a well defined proper research problem is crucial and first step in research.

2.2. Definition of Research Problem:

A person or group of persons having a distinct difficulty with regard to a phenomena and tries to find solution using scientific method may broadly be defined as research problem. It is some difficulty which a researcher experiences in the context of theoretical practical situation and wants to obtain a solution for the same.(Kothari). The term problem in its Greek form, *proballein*, means any thing through forward; any thing proposed for solution; a matter stated for examination.

Woodworth defines problem as a situation for which we have no ready and successful response by instinct or by previously acquired habit. We must find out what to do.

Thus research problem envisages,

- a person or group of persons
- having experienced the difficulty
- in a given situation, either theoretical or practical – environment
- has/have inclination to solve the difficulty
- for a specified objective
- there are two or more means to solve the problem
- the researcher experiences doubt as to which course or means is to adopt in order to reach the objective and solve the problem.

2.3. Determination of the research problem:

Like musical appreciation choice of the problem depends upon ones own taste. It should be a “problem” which researcher faces and wants to find a solution. If the problem springs from others and the researcher wants to find solution that identification or belonging will not be there. It would be a “problem” of others for which researcher seeks solution. However, often now a days either in business houses, industrial sector or even in governmental front the research work is carried out for the specific problems set for specific purposes. In such cases the problem is not researcher’s “own” but organizational. Here researcher is only an employed person and personal likes and dislikes are not counted. Goode and Hatt enumerate the criteria for the selection of a research problem: 1. The Researcher’s interest, intellectual curiosity and drive; 2. practicability; 3. urgency of the problem; 4. anticipation of the outcomes; 5. resources, training, expertise, availability of resources and facilities etc.

The following guiding principles have to be borne in mind in choosing a research problem.

- the problem should not be too broad, narrow, vague and uncertain
- the study should be significant and should have theoretical or practical value
- the problem should be suitable and feasible for investigation

- the researcher has sufficient expertise and training to conduct the research
- the data planned for collection must be susceptible for analysis
- the problem should not have been already over done, unless some thing new is envisaged.
- Time and economy influence the choice of the problem

The researcher should be aware of three principle components of research problem.

1. What the researcher wants to know?
2. Why a particular problem is being put ?
3. Possible, alternative solutions to the problem.

2.4. Steps in the selection of and framing the problem:

Choose the broad field
Narrow down to the area of the problem chosen
State the problem in general terms
Understand the problem
Make a pilot study if required
Review the existing literature or works over the similar problems
Have intellectual interactions
Reconsider the statement of the problem taking into account the time and resources
Understand and define various terms used in the problem
Rephrase the problem in specific and clear terms

2.5. Sources of Data:

Source means the quarter from which we seek our knowledge. The sources may be documentary and field sources. Contact with living persons, respondents who have considerable knowledge about the happenings and who are in a position to describe authoritatively the state of affairs are

considered to personal source or direct source in the field. The documentary sources are mainly classified into 1. Primary Source. 2. Secondary source.

Original first hand information is treated to be primary source. Data gathered at first hand, the responsibility for their compilation and promulgation remain under the same authority that originally gathered them. (Young). Census and various governmental reports may be cited as primary source. Data from the primary source can be gathered by participant observation, personal interview, conference, correspondence, questionnaire etc.

Where as if the data is transcribed or compiled from original sources and the promulgating authority is different from the authority collecting the same it is treated as secondary source. According to Chaddock “their reliability for research work can be determined only by reference to the primary source which should be cited in notes or bibliography. This will enable any one who so desires to make himself responsible for the facts by reference to the original source. Discrepancies appear in different secondary sources which must be settled from the original source.” Books and periodicals and articles published there of are considered as secondary source.

Library is a source for both theoretical and practical knowledge. Libraries are important because the researcher inevitably in his course of research uses books, periodicals, documentary material, pamphlets from that source.

Francis Bacon once observed:

*Read not to contradict and confuse;
Nor to believe and take for granted;
Not to find talk and discourse;
But to weigh and consider.*

2.6 Self assessment questions:

1. Define research problem. What are the criteria to determine research problem?
2. What are the various steps involved in selecting the research problem? – explain
3. Classify and explain the sources of data

2.7 Further Readings:

1. Kothari, C. R., *Research Methodology* (1990, Wiley Eastern Ltd., New Delhi, 2nd Edn)
2. Young, Pauline V., *Scientific Social Surveys and Research*, (1982, Printice Hall Int., New Delhi, 4th Edn.)
2. Goode J. William and Hatt, Paul K, *Methods in Social Research* (1981, McGraw-Hill)

Unit-3

HYPOTHESIS

Objectives:

The lesson is planned to equip the students the skills in formulating the tentative generalization establishing relationship between two or more variables. In particular the lesson aims at

- motivating the students about the importance of hypothesis and make her aware about the meaning and scope of the expression “hypothesis” and various types of hypothesis
- Clarifying the student the distinction between research question and hypothesis
- Making her aware about the relationship between theory and hypothesis
- Making her aware the chief characteristics of hypothesis
- Giving tips to find the sources from which the hypothesis can be formulated
- Projecting the difficulties in formulating the hypothesis and
- Presenting her to various available techniques of testing the hypothesis

Structure

- 3.1 Introduction
- 3.2 Meaning and definitions
- 3.3 Research question and hypothesis
- 3.4 Relationship between theory and hypothesis
- 3.5 Characteristics of Hypothesis
- 3.6 Sources of Hypothesis
- 3.7 Difficulties in formulating hypothesis
- 3.8 Types of Hypotheses
- 3.9 Null Hypothesis and alternative hypothesis
- 3.10 Testing Hypothesis
- 3.11 Summary
- 3.12 Self assessment questions
- 3.13 Further readings

3.1. Introduction:

The development of hypothesis is a very vital aspect of a scientific research. A research work without hypothesis is a rare phenomenon. It gives direction and focus to the research. It refines the process research. Without the hypothesis research is unfocussed and random empirical wandering. When a research problem is articulated a researcher will have in his mind a tentative generalisation about possible outcome of the research. This tentative generalisation may be proved or disproved based upon the analysis of data or material that is processed for research. This is generally called the hypothesis. Bachrach, opined,

“ a researcher observes an event, wonders about it, formulate some tentative ideas about it, and sets out to test the accuracy of his ideas.” While giving provisional answer to the problem the researcher tries to establish relationship between two variables.

3.2. Meaning and definitions:

“Hypo” means “less than”

“Thesis” means generally held view.

Hypothesis means less than generally held view.

According to Moshin, “ hypothesis is a conjectural statement about a relationship among two or more variables.”

According to Lundberg, “a hypothesis is a tentative generalisation, the validity of which remains to be tested. In its most elementary stage the hypothesis may be any hunch, guess, imaginative idea which becomes the basis for action or investigation”.

According to Goode and Hatt, “ a hypothesis looks forward. It is a proposition which can be put to a test to determine its validity. It may seem contrary to, or in accord with commonsense. It may prove to be correct or incorrect. In any event, however, it leads to an empirical test.”

According to Webster’s New International Dictionary the term hypothesis refers to “a proposition, condition or principle which is assumed, perhaps without belief, in order to draw out its logical consequences and by this method to test its accord with facts which are known or may be defined.”

Kothari defines hypothesis as “a proposition or a set of propositions set forth as an explanation for the occurrence of some specified group of phenomena either asserted merely as a provisional conjecture to guide some investigation or accepted as highly probable in the light of the established facts. Quite often a research hypothesis is a predictive statement, capable of being tested by scientific methods, that relates an independent variable to some dependent variable”.

3.3. Research question and hypothesis:

All the research works start with tentative generalisations. These generalisations may be in the form of either research question or hypothesis. A research question and hypothesis are similar in nature except for the aspect that a research question does not predict the outcome of the research whereas a hypothesis predicts the outcome. Research questions are generally used in the exploratory research or in the areas where a phenomenon is studied marginally. The research is carried to know *indications* rather than *causality*. Hypothesis is a tentative, testable generalisation regarding the relationship between variables. For Eg, Poverty & rate of criminality.

3.4. Relationship between theory and hypothesis:

Formulation of deductions from the existing theory constitute hypothesis. If these deductions are proved they become part of theory. According to William H. George, “theory is an elaborate hypothesis”. Every worthwhile theory permits the formulation of hypothesis.

3.5. Characteristics of hypothesis:

- ✚ Hypothesis should be clear, specific and precise
- ✚ Hypothesis should be capable of being tested, have empirical referents
- ✚ Hypothesis should establish relationship between variables
- ✚ It must be compatible with the current knowledge in the area concerned
- ✚ Amenable to explanation
- ✚ It should be in its most parsimonious form
- ✚ It should have logical consistency
- ✚ It should be operationally defined

3.6. Sources hypothesis:

- (a) According to Goode and Hatt the general culture in which a science develops furnishes many of its basic hypothesis. Hypothesis develops based upon the researcher's attention which generally will be influenced by cultural values.
- (b) Hypothesis originates in science itself. Theory gives direction to research by stating what is known. Logical deduction from the theory leads to new problems. Science is twined with values and it influences the tentative generalisation. Learning experience always influences the sketching of the hypothesis. Socialisation process in learning a science also affects the hypothesis which will be developed by the scientists.

- (c) Analogies are useful sources of hypothesis: Julian Huxley opined that casual observations in nature or in the framework of another science may be a fertile source of hypothesis. Comparative studies are invigorating sources of research.
- (d) Hypothesis are also consequences of personal, idiosyncratic experiences.

3.7. Difficulties in formulating hypothesis:

Goode and Hatt observed that the researcher often suffers from the following deficiencies which pose problems in formulating good, definite and testable hypothesis.

1. Absence of or the absence of knowledge of a clear theoretical framework .
2. Lack of ability to utilize the theoretical framework logically.
3. Failure to be acquainted with available research techniques so as to able to phrase the hypothesis properly.

3.8. Types of hypothesis:

Hypothesis is variedly classified based upon frequency of occurrence, characteristics, causality, level of abstraction and the like

Goode and Hatt classifies hypothesis based upon the level of abstraction as follows:

1. Hypothesis stating the existence of empirical uniformities: often this type of hypothesis represent the scientific examination of common-sense propositions. Deal with degree of uniformity in social behaviour. Such types of hypothesis proceed on the premise that “what every body knows” is not known till it has been tested and proved.
2. Hypothesis concerning complex ideal types: These hypotheses aim at testing the existence of logically derived relationships between empirical uniformities. The phenomena of land values, industrial concentrations, types of business which show unquestionable uniformities in distribution can be logically analysed and studied in their relationship to various variables.
3. Hypotheses concerning the relation of analytic variable: This type of hypotheses occur at a level of abstraction beyond that of ideal type. The study of analytic variables requires formulation of relationship between changes in one property and changes in another.

Another classification is:

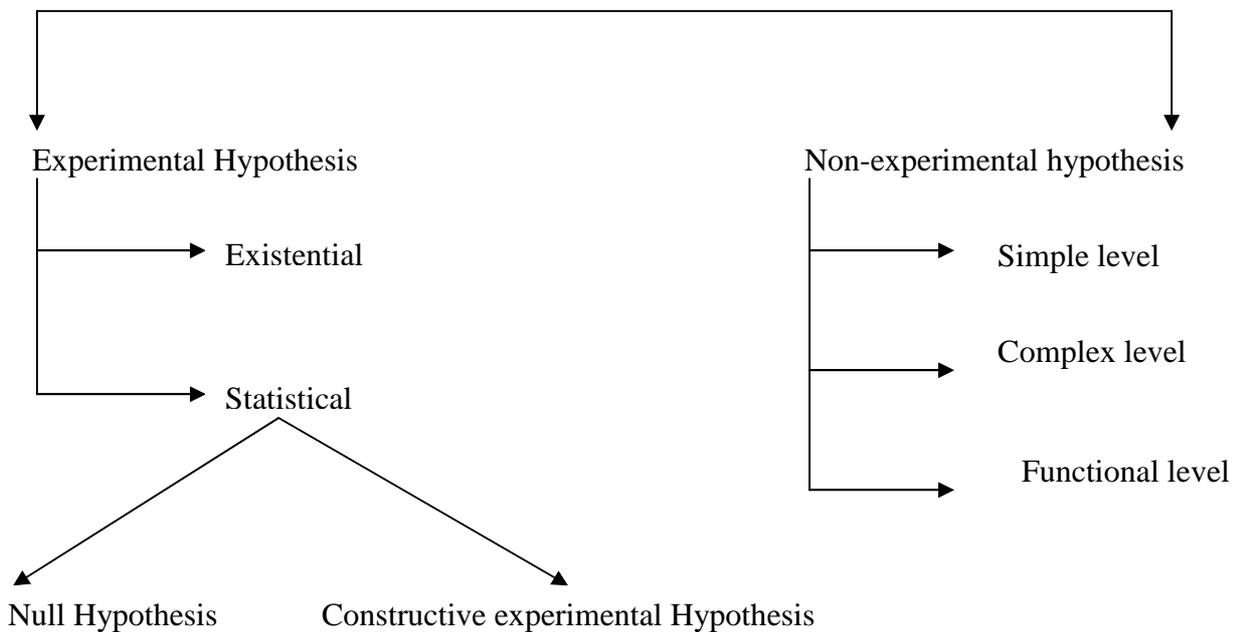
Hypothesis



Uni-variable – Multi variable Hypothesis	Associational (relating two or more variables) and Non associational (establishing absence of or negative relationship between variables)	Universal (relationship of variables true at all times) and statistical (probabilities)	Temporal (pertaining to a point of time) and cross-sectional
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Or

Hypothesis



3.9. Null Hypothesis and Alternative Hypothesis:

If method A is to be compared with method B about its superiority and if we proceed on the assumption that both methods are equally good, then that assumption is termed as null

hypothesis, where as if one assumes that method A is superior and method B is inferior or *vice versa* the assumption can be termed as alternative hypothesis. Null hypothesis tries to disprove or reject where as alternative hypothesis tries to prove and does not involve in rejection but refers to all possibilities. Null Hypothesis does not have approximations but will be specific. This is a best suited one for statistical techniques.

3.10. Testing of Hypothesis

One of the requisites of hypothesis is that it should state specific relationship between phenomena in such a way that this relationship can be empirically *tested*. Hypothesis is a predictive statement which has to be proved or disproved scientifically. Before Hypotheses are put to test the following things have to be ascertained.

- that the terms of hypotheses are empirically specific and the concepts and variables can be distinguished in concrete situations.
- The posited relationship between variables is such that it could be verified or nullified by means of empirical operations.
- There is some prior evidence as to the truth or falsehood of the posited relationship
- An appropriate study design can be devised
- The variables are context-bound
- The generalizations are either context-bound or applied realistically to other cultures
- If the relevant factors are subject to change in the course of the observation, they are adequately specified and enumerated.
- The generalization is a part of theoretical system and it can be deduced and verified by the proposed empirical verification.
- The empirical system that is constructed is sufficiently precise and articulated to permit predictive statements in concrete situations

In his *System of logic* John Stuart Mill provided for testing procedure and advocated two means of arriving at logical conclusions in the testing of hypothesis.

1. The method of agreement
2. The negative canon agreement

Pauline V Young summarises these two methods

In *method of agreement*, if every or most cases in A (degree of emancipation) is found in relation to B (urbanization), it is logical to conclude that there exists a causal relationship between A and B. If it is found that it is not possible to rule out various factors irrelevant to our proposition, or we can not find A in most cases of B, or A is associated not with B but with another factor, the hypothesis must be regarded as false.

In the *negative canon agreement*, we state an alternative hypothesis viz., lack of urbanization results in lack of emancipation. It is maintained that when lack of certain phenomena are always, found with lack of other phenomena, we may conclude that there is a causal relationship between them.

In order to overcome the weaknesses in these methods and to improve further *classical experimental design* was adopted. Mill called it as *method of difference*. If there are two or more cases and in one of them observation X occurs and in the other no such observation occurs and if factor C occurs along with observation X and factor C does not occur if there is no observation X, then it can be stated that there is causal relationship between X and C. It may be inferred that C could cause X or other possible factors could not cause X.

Another method that was developed was *method of concomitant variation* which is applied as a form of correlation analysis. If a change in the amount of one variable is accompanied by a comparable change in the amount of another variable in two or more cases, and the latter change does not occur in the absence of the first change, one change is the cause or effect another change

3.11. Summary

It is not necessary that every research should start with hypothesis. There may be research activities that can be carried without any theory being put to prove or disprove. An exploratory research can be carried on without hypothesis. Absence of hypothesis does not effect formulation of hypothesis and basic research questions. However, it is advantageous if one has such hypothesis, a tentative predictive statement about the possible outcome of the research work, as it gives focus of the study, avoids empirical wandering and helps in building meaningful theoretical framework.

3.12 Self assessment questions:

1. Define Hypothesis. Examine the difficulties in formulating hypothesis
2. Explain various types of hypotheses. How the hypotheses are tested?
3. What is the importance of a hypothesis in a research work? What are the sources to formulate hypotheses?
4. What is the relationship between theory and hypothesis? Distinguish between a research question and hypothesis.

3.13 Further Readings:

1. Kothari, C. R., *Research Methodology* (1990, Wiley Eastern Ltd., New Delhi, 2nd Edn)
2. Young, Pauline V., *Scientific Social Surveys and Research*, (1982, Printice Hall Int., New Delhi, 4th Edn.)
3. Goode J. William and Hatt, Paul K, *Methods in Social Research* (1981, McGraw- Hill Int.)

UNIT-4

Research Design

Objectives:

This unit is designed

- ❖ to equip the students with the skills of preparing a research design
- ❖ to create awareness among the students about the importance and need of constructing a research design
- ❖ to impart knowledge relating to various forms of research design
- ❖ to inform the students about the steps and procedures in the preparation of a research design

Structure

- 4.1 Introduction
- 4.2 Definitions
- 4.3 Essentials of good research design
- 4.4 Forms and Techniques of research design
- 4.5 Major steps in the preparation of research design
- 4.6 Summary
- 4.7 Self assessment questions
- 4.8 Further readings

4.1 Introduction:

Research design is a tentative plan for executing the research project. It is a sort of blue print for the research work. It is generally compared to series of guideposts for smooth execution of research work in right direction. It covers specifications regarding the objectives of the study, hypothesis to be tested, the types and sources of information required and methods of to be adopted in the data collection and analysis. As Pauline V. Young pointed out it encompasses the following interrogatives.

What the study is about and the types of data that are needed

Why the study is being made

Where the needed data can be found

Where, or in what areas, the study will be carried on

When, or what periods of time, the study will include

How much material or how many cases will be needed

What bases of selection will be used

What techniques of gathering data will be adopted

As noted it is a tentative plan for the program of research and not a rigid one. It may be well thought of blue print for construction, but may undergo revision in the course of research based upon several factors like finding a new aspects or causal relationships, discarding the old one when they become obsolete during the course of study. A research design is, however, often dictated by the time and resource constraints, availability of data, desirability and possibility of undertaking the work etc.,

The importance of the research design lies in the fact that it throws light to show the right direction. It maximizes the reliability and minimizes bias and subjective empirical wanderings. A properly designed research design results in smallest error in the investigations and data. An efficient, appropriate, flexible research design is a prerequisite for any meaningful research just like having a blue print or a plan for the construction of a building.

4.2 Definitions:

According to Pauline V. Young *a research design is the logical and systematic planning and directing of piece of research.*

According to Bernard Philips *it constitutes a blue print for the collection, measurement and analysis of the data.*

Kerlinger opines that it is *the plan, structure and strategy of investigation conceived so as to obtain answers to research questions.*

According to Claire Selltiz *a research design is the arrangement of conditions for collection analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure*

4.3 Essentials of a good research design:

A good research design ought to serve the dual purposes of optimum reliability and negligible errors in the collection of data. The major factors that influence the formulation of research design are: time frame; availability of resources; nature of the problem; objectives; skills of the researchers and means of obtaining the data etc. There cannot be a standard pattern or common design for all the research problems. An appropriate design has to be evolved based upon the problem chosen. However, the design chosen should assure objectivity, reliability, validity and generalisation.

The design must cover the following components viz., the sampling design, observational design, statistical design and the operational design. It should give as distinctly as possible the

source and type of information required, approach for collecting and analyzing the data the cost and time limitations.

4.4 Forms and techniques of Research Design:

1. Research Design for exploratory research
2. Research Design for descriptive or diagnostic research
3. Research Design for Hypothesis Testing research

1. Research Design for Exploratory Research :

These types of studies are also termed as Formulative Research Studies. These studies are directed towards more precise investigations to discover new ideas and evolving working hypothesis. The designs for this purpose should naturally be flexible to facilitate varied aspects of the phenomenon. Non-probability sampling design often goes with it. Flexibility also assures unstructured instruments for collection of data. There may not be any pre-planned statistical design. Such design adopts the following techniques.

(i) Survey of relevant pre-existing literature

Research is always cumulative and builds upon the existing knowledge. The researcher reviews the already existing works in the field concerned and starts from where it is left and where the hypothesis is not formulated he derives the appropriate hypothesis based upon the source material.

(ii) Experience Survey

This involves in consulting the experienced people in the field who have sufficient expertise and practical knowledge. Usually interviewing technique is used to make a survey involving such people. Such studies give scope for studying the relational aspects of variables besides framing a good hypothesis. This survey also helps in formulating a refined research problem.

(iii) Analysis of “insight-stimulating examples

An intensive study of a phenomenon by choosing examples and instances in order to interpret the whole is an aspect of formulative research study. It is useful to prepare useful hypothesis. However, it is based upon the skill of the researcher in selecting the instance for the in-depth study. The possibility of drawing appropriate instance for insight stimulating instances is not always free from doubt.

2. Research design for descriptive and diagnostic research:

Both descriptive and diagnostic research designs are studied together in view of the common requirements.

Descriptive studies describe characteristics of a group, individual or a phenomenon, make specific predictions, narrate facts.

The diagnostic studies deal with the association of variables and determine the frequency at which a thing occurs.

With reference to the above studies the design will be rigid, sampling is based upon probability sampling design. Well structured tools of data collection are used. Statistical design is planned in advance.

The focus is laid on the following steps in preparing the design for the above purpose.

1. Objectives are clearly specified in order to get relevant information
2. Devising appropriate techniques or methods of data collection
3. Selecting and devising suitable sampling design to assure true representative character of the universe. Generally random sampling techniques are used
4. Complete, comprehensive, consistent and reliable collection of data with minimum level of errors.
5. Planning for tabulation and analysis of data.
6. Planning for appropriate method of reporting

3. Research Design for hypothesis-testing:

This is also generally known as experimental studies. In these studies the researcher tests the hypothesis of causal relationships between variables. It requires a careful designing of the process to secure more reliability and removal of bias. Prof. R.A. Fisher is an exponent of this design. Experimental design refers to the frame work or structure of an experiment. this design is based upon three main principles.

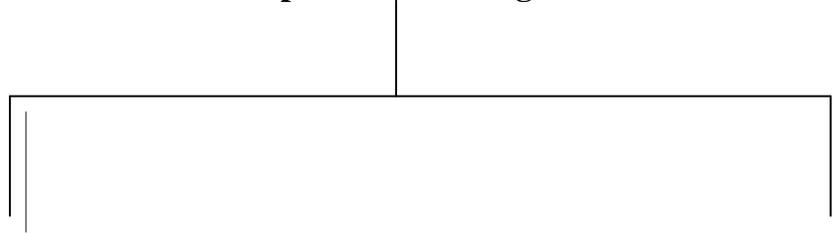
1. the principle of replication
2. the principle of randomization
3. the principle of local control

The principle of replication implies the repeated conduct of the experiment more than once. This enhances the statistical accuracy.

Randomization shields the experiment from the impact of extraneous factors, as the variations always will have a chance of being represented. Such exercise gives scope for the estimation of experimental error.

The principle of local control is two way analysis of variance. In this, the extraneous factors are deliberately made to vary in order to estimate and eliminate the experimental error.

Experimental Design



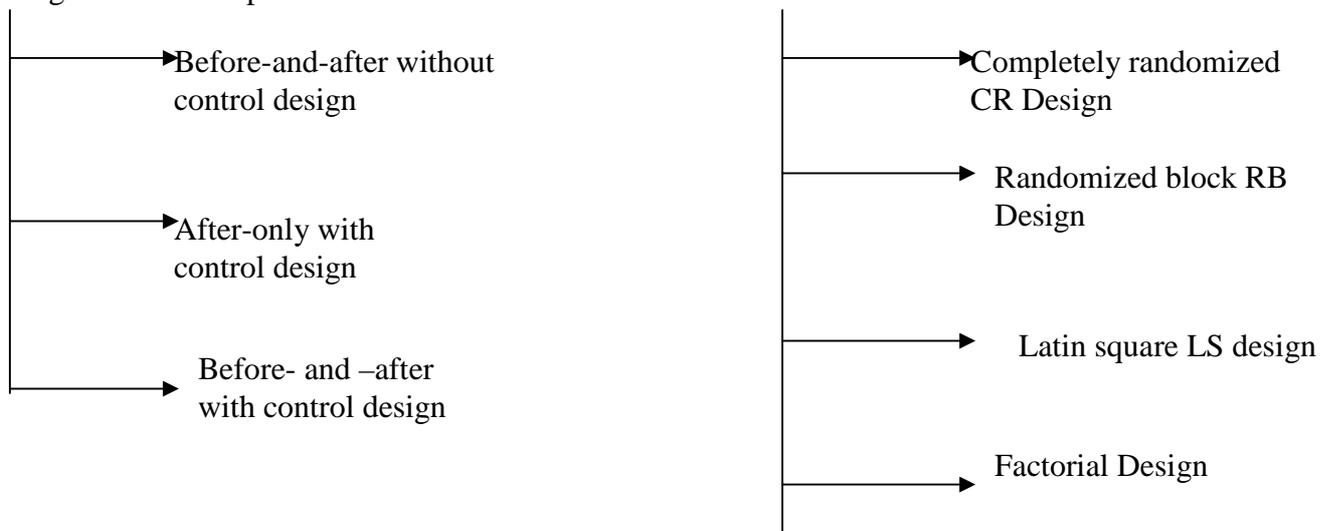
The experimental designs are categorized as under

Informal Experimental Designs

Formal Experimental Designs

4.5 Major Steps in the preparation of research design:

As mentioned earlier each research problem requires separate treatment for design and abstract standard and general pattern can be worked out in common for all the categories of research studies. The design that suits good for exploratory research may not suit the requirements for diagnostic or experimental research. However there are certain irreducible minimum



requirements for any design. According to Pauline V. Young
The research design should include at least the following parts.

1. Sources of information to be tapped
2. Nature of the study
3. Objectives of the study
4. Socio-cultural context of the study
5. Geographical area to be covered
6. Periods of time to be encompassed
7. Dimensions of the study

8. the bases for selecting the data
9. techniques to be used in gathering the data

The following few steps may also be deduced based upon the above discussion

1. Setting the objectives
2. Fixing the parameters of the problem
3. Presenting the conceptual frame work
4. Sources of data
5. Tentative generalisations
6. Identification and specification of methods and methodology for collection of data
7. Methods to be used in the analysis of the data
8. Time and cost budget
9. Mode of reporting the findings

4.6 Summary

Research design is an essential, albeit an important one, for the successful completion of any research. To put directly, it provides a spring board to go about the research effectively and efficiently. It is a programme that guides the researcher in the process of selecting, collecting, analyzing and interpreting the data. However, the preparation of a suitable design is a crucial choice for a researcher. There are varied designs for exploratory, descriptive, diagnostic, historic, experimental, ex-post facto and causal studies. It is a deliberate advanced preparedness and planning by the researcher to reach the desired goal and achieve the required results.

4.7 Self – assessment questions

1. Define Research Design. What is its importance and need?
2. Explain various forms of Research Design
3. Draft various examples of Research Design
4. What are the various steps in formulating Research Design.

4.8 Further readings:

1. Runkel, P.J., *Research in human behavior* (1972, Holt, New York)
2. Kothari, C. R., *Research Methodology* (1990, Wiley Eastern Ltd., New Delhi, 2nd Edn)
3. Young, Pauline V., *Scientific Social Surveys and Research*, (1982, Printice Hall Int.,New Delhi,4th Edn.)
4. Goode J. William and Hatt, Paul K, *Methods in Social Research* (1981, McGraw-Hill Int. Singapore)
5. Moshin, S.M., *Research methods in Behavioural Sciences*, (1989, Orient Longman, Calcutta)

Sampling Techniques

Objectives:

This unit is designed to

- ❖ Familiarize the student with various sampling designs
- ❖ Impart knowledge about the census and sampling methods and their use
- ❖ Create awareness among the students about the relative importance of various sampling techniques

Structure:

- 5.1 Introduction
- 5.2 Definitions
- 5.3 Basic assumptions in preferring sampling method
- 5.4 Advantages of sampling method
- 5.5 Limitations of sampling method
- 5.6 Characteristics of good sample
- 5.7 Classification of sampling techniques
- 5.8 Summary
- 5.9 Self assessment questions
- 5.10 Further readings

5.1 Introduction:

In a research it is not always required, possible or desirable in view of the time and resources to consult every unit of the target group or observe the phenomena in detail. Analysing large masses of data may be proved as a futile and unnecessary voluminous exercise. In such circumstances scientific use of sampling technique will be meaningful and useful.

All the units, elements or items in the field of inquiry constitute *universe*. It is also known as *population*. If all the units are consulted and covered the method of research is *census method*. It assures highest accuracy and concrete description of a phenomena without any element of bias as all the elements are taken into consideration without any chance of being left. Certain studies always require this method. For example, population census, literary digests, utility subscriptions, voting registrations etc., where one cannot opt for sampling. This type of inquiry involves large paraphernalia , time, money and energy besides organizational abilities. Data should be carefully collected lest the wrongful entry of the characteristics may result in large bias. The universe may be finite or determinable universe or may be infinite where the possibility of covering all the elements will not be there.

In order to overcome the difficulties in conducting the census method a scientific sampling design is advocated. A good sample fairly and accurately fit into the description of the whole. It facilitates inference about the phenomena with unknown or large parameters and it serves as a technique to statistically test the hypothesis.

5.2 Definitions:

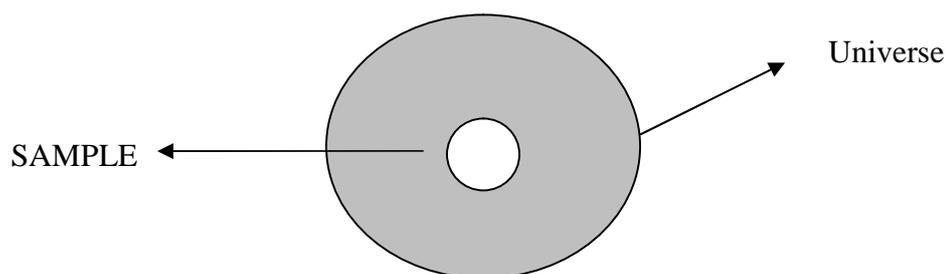
According to Goode and Hatt *a sample is a smaller representation of a larger whole*

According to Kothari *it is representative of the total population in order to produce a miniature cross-section.*

According to Mohsin *a sample is a portion of entire lot of certain kind of objects. The entire lot is called the universe or population.*

According to Wimmer and Dominick *a sample is a sub set of the population that is taken to be representative of the entire population.*

The procedure adopted to draw the sample may be termed as sampling technique and the definite plan for obtaining the sample from the universe is termed as sampling design.



5.3 Basic assumptions in preferring sampling method:

Though human behaviour, which is the basis for any social research, is complex, there is underlying homogeneity and common problems that may help to draw representative sample. Similarity of the elements in a universe gives rise to sample studies. That is how needs of the people at large are estimated.

Another assumption is that mathematical precision and absolute accuracy in the matters of socio-legal phenomena is not required and it is enough if broad generalisations can be drawn and fair and relative accuracy is enough. Exit polls is best example for this.

It is also assumed that if an appropriate selection of the units is made the sample represents the whole even if its is a socio-legal phenomena

5.4 Advantages of sampling method:

1. Saves the time and reduces the cost
2. Provides quicker results
3. Save human resources and will be within the manageable limits
4. Assured accuracy of results if properly executed the technique
5. Only method when census method could not be adopted
6. Amenable to statistical analysis and testing.

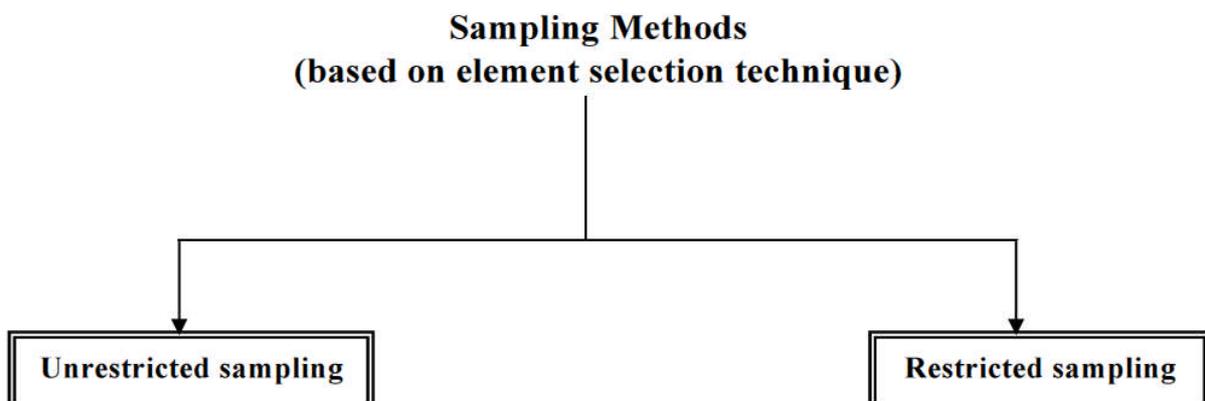
5.5 Limitations of Sampling method:

1. Requires specialized knowledge of the sampling techniques in order to execute the work
2. Chances of systemic bias or sampling errors are more if the adopted method is not suitable or defective.
3. If it is a very complicated and complex phenomena sampling technique may not facilitate representative sample
4. By very nature as noted require only census method
5. If the universe itself is small representative sample may not be possible.

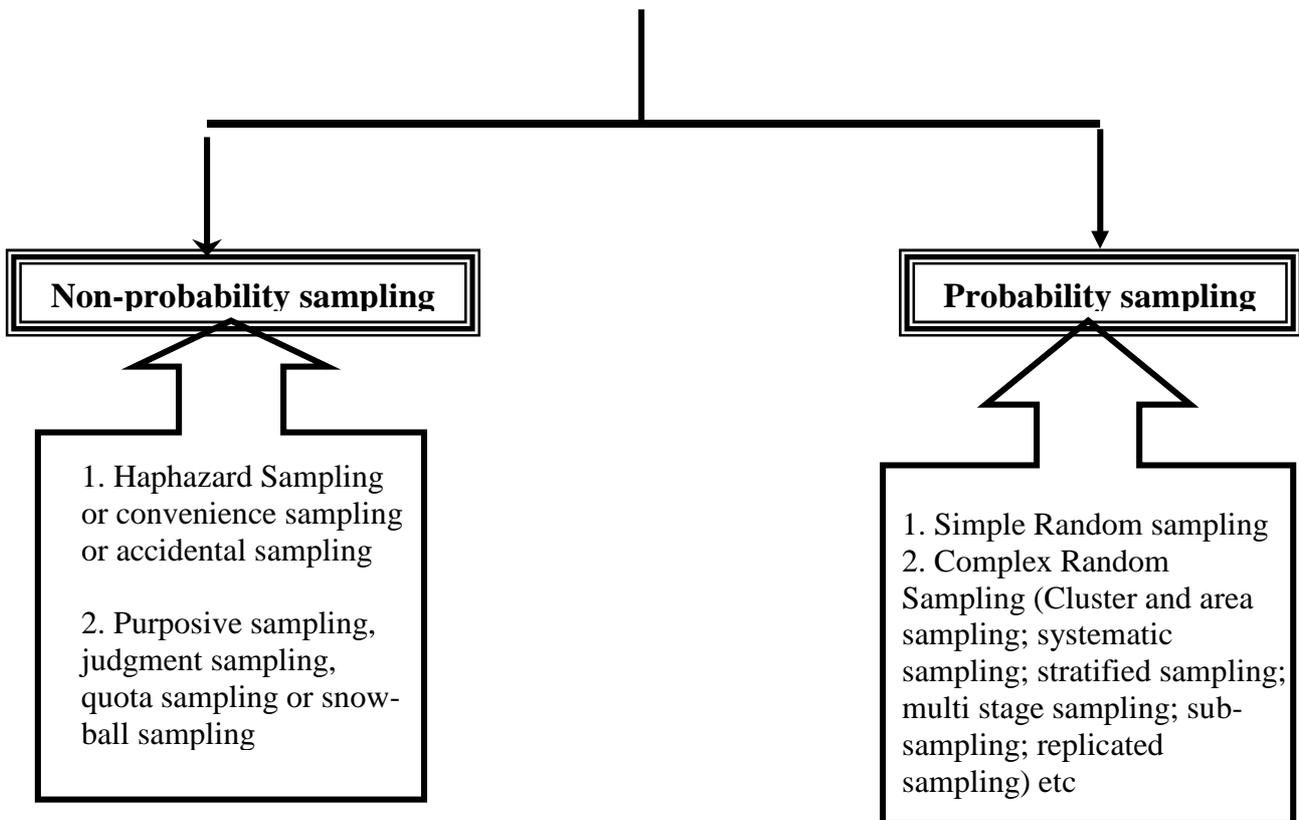
5.6 Characteristics of good Sample:

1. Truly representative in nature
2. No systemic bias or sampling error
3. Proper devices to control sampling error and systemic bias
4. Viable in the terms of both human and monetary resources
5. Must yield to precise estimates and lead to accurate results
6. Must be adequate in size for drawing proper inferences

5.7 Classification of the Sampling techniques or methods / types of sampling designs



Sampling Methods (representation basis)



In **Probability Sampling** sample is selected according to guidelines whereby the chance of selection of each unit is known. Each unit stands for a chance of selection. It is based on the theory of probability. Hence it results in a representative sample. Because of randomization the systemic bias is reduced, and generalisation is accurate.

Where as in **non probability sampling** the mathematical guidelines are not followed and does not give scope for probability. The units do not stand for equal chance of being selected. The representative aspect of the sample is not assured. There is a scope for systemic bias and statistical errors. Inferences thus drawn may thus become questionable. However, as a matter of expediency for certain studies non probability sampling method is adopted for its simplicity, convenience, availability of time and low cost or the results are to be localised. Practicability is the basis for adopting this technique.

In deciding whether to use one or the other type one has to consider 1. Cost Vs Value
2. Time constraints 3. Purpose of the study and 4. amount of the error allowed.

Types of Non-probability Samples:

Haphazard sampling, or convenience sampling or accidental sampling techniques are available sample collections from the readily accessible units of study. It may be like hit and miss fashion. Such studies may be elementary or exploratory in nature with the danger of unknown quantity of errors and suffer from least reliability. The proponents of this method argue that if every unit represents whole and basic homogeneity is assured even by this type of sampling the characteristics of the phenomena can be estimated. One has to accept that these types of sampling are informally used by the researcher for validation of a questionnaire, in solving the problems faced in adopting the methodology etc.

Purposive sampling is a better type of non probability sampling. Though it is deliberate selection of the sample, it is based upon some pre-determined criteria. It is also known as judgement sampling as it depends upon judging the appropriate selection which according to the researcher or an expert is most suitable. But still it is subjective. It does not guarantee representativeness. However, the generalizations drawn may be appropriate with regard to particular unit. For example the study of status in a particular industry, RTC etc.

Quota sampling is a method of selecting a particular pre determined percentage of units for the purpose of study. This is generally done when the universe consists of various categories like, religion, race, caste, sex, geographical distinctions etc. such percent is selected based upon accessibility. Ie., it is a type of stratified sampling with non-random selection within the strata.

Snow-ball sampling is based upon the selections within the category through some informants. For example if the students of a particular origin have to be contacted the list provided by the authorities of the school may be relied upon

Probability Sampling methods:

The elementary type of probability sampling is *the simple random sampling*. In this type each unit of the universe has an equal chance of being selected. If the selected unit is removed from the subsequent selection the procedure is termed as *simple random sampling without replacement*. If the selected item is again placed in the universe the procedure is termed as *simple random sampling with replacement*. Sample with replacement is used less frequently.

Sampling at random may be drawn either from finite population or infinite population.

The finite sampling gives each element in the population an equal probability of getting into the sample and all choices are independent of one another. It gives each possible sample combination an probability of being chosen (Kothari). Selection of each item in random sample from an infinite population is controlled by the same probabilities and that successive selection are independent of one another. It goes with sample with replacement.

The selection of items in a random sampling technique can be made by various devices like lottery in different modes. However such methods have limited utility. Some of the statisticians like Tippett, Yates, Fisher have prepared random number tables. Among them Tippett is popular which gave 10400 four figure numbers. He selected 41600 digits from the census reports and combined them into fours to give his random numbers which may be used to obtain a random sample. Random sample in telephone surveys often use random digit dialing where certain digit numbers are selected either generated by the computer, or number tables or through directories.

Advantages of simple random sample: 1. specialized knowledge about the universe is not required

2. external validity may be statistically inferred.
3. representative group is easily obtained.
4. errors are eliminated

Disadvantages: 1. Listing of the universe is at time impracticable

2. sampling errors are possible
3. procedure may be expensive and lengthy

Complex Random Sampling methods:

In a *Systematic sampling*, an improvised simple random sampling, every ' n 'th item is selected from the universe at a regular *sampling interval* at a determined *sampling rate*. For example if 50 or 5% sample is to be drawn from thousand respondents the sample at random starts say at 1 and goes on 20,40, 60 and so on. First unit is selected at random and remaining items are selected at regular intervals. Systematic sampling depends upon adequacy of the *sampling frame*. One major limitation over this method is that the procedure is vitiated by fixed periodicity.

Advantage: 1. selection is easy 2. selection is more accurate than in a simple random sample 2. procedure is inexpensive

Disadvantages: 1. listing of the population is not always easy 2. periodicity may cause bias in the procedure

Stratified Sampling is adopted when the chosen universe is not homogeneous. Under this technique the population is divided into sub-groups having common characteristics known as strata. Then selection of items from each stratum constitute sample. Here strata are purposively formed based upon expertise, experience, judgement of the researcher or experts or based upon some pilot study. The sample, thus collected gives a better estimation of the whole. According to Babbie,

stratified sampling ensures the proper representation of the stratification variables to enhance representation of other variables related to them. Taken as a whole, then, a stratified sample is likely to be more representative on a number of variables than a simple random sample.

While attempting at this type the following procedures are to be clearly laid.

1. Procedure to form strata

2. Procedure to select items from each stratum
3. Procedure relating to the number items to be selected from each stratum
4. procedure relating to fixing sample size.

Advantages:

1. Selection can be made from the homogeneous sub-group
2. Sampling error is reduced
3. representativeness of variables is assured
4. comparative analysis of other populations can be made

Disadvantages:

1. In order to form strata prior thorough knowledge of the universe is required,
2. The procedure involved is time consuming and may prove costly
3. If the universe is limited finite and small it may be difficult to draw the strata and thereby valid sample

Cluster Sampling method is used when the area under investigation is a larger one. In such cases the area can be divided into smaller non overlapping areas known as clusters. The clusters are selected at random and sample consisting of all the units in the cluster is collected.

Advantages:

1. If the clusters are well defined the cost will be reduced
2. Only a part of the population need to be enumerated
3. The estimates of the cluster parameters can be compared to the population

Disadvantages:

1. Clusters may not represent the universe
2. Sampling errors may creep in and it is less precise than the random sampling
3. Each unit has to be assigned to some specific cluster

If the clusters relate to a geographical area it is termed as **Area Sampling**.

Multi stage sampling is an improvement over the above cluster sampling and utilized in a big geographical areas. If a country level investigation is attempted, initially cluster sampling can be done at state level, then at districts, blocks, panchayats or pin-code areas. The sampling frame under multi-stage sampling is developed in partial units thereby making it easier to administer in considerably large geographical areas.

Sequential sampling technique usually applied in the context of statistical quality control. The size of the sample is not set in advance of the investigation but adopted when survey progresses and is determined based on appropriate mathematical rules.

5.8 Summary:

Sampling theories have become distinct discipline of study in view of its importance in various surveys. A definite plan for sampling from a given population is vital link for a successful completion of the research. A sample is a subset of the universe that is taken to be the representative of the whole. The chief aim of any sampling method is to eliminate the bias and remove the sampling errors. Though the probability sampling methods are preferred over non probability sampling techniques in order to achieve accuracy there are certain situations where one has to rely upon the non probability sampling. That is why one should not underestimate the utility of purposive sampling in real life situations. These sampling techniques are not mutually exclusive but can be utilized as supplementary to each other in the same study.

5.9 Self assessment questions:

1. Define the terms 'sample' and 'population'. Explain the utility of sampling techniques.
2. Explain the basis for the sampling technique. What are the requisites of a good sample?
3. What are the various forms of the sampling methods?
4. Write short notes on the following
 - (a) Stratified sampling
 - (b) Cluster sampling
 - (c) Purposive sampling

5.10 Further Readings

1. Runkel, P.J., *Research in human behavior* (1972, Holt, New York)
2. Kothari, C. R., *Research Methodology* (1990, Wiley Eastern Ltd., New Delhi, 2nd Edn)
3. Young, Pauline V., *Scientific Social Surveys and Research*, (1982, Printice Hall Int.,New Delhi,4th Edn.)
4. Goode J. William and Hatt, Paul K, *Methods in Social Research* (1981, McGraw-Hill Int. Singapore)
5. Moshin, S.M., *Research methods in Behavioural Sciences*, (1989, Orient Longman, Calcutta)

UNIT -6

Research Tools

Objectives:

This unit is set to impart the student

- ✓ The skills of using various research tools in the collection of data
- ✓ The importance of observation method, both participant and non participant, especially in exploratory research
- ✓ The utility of questionnaire and schedule in the collection of data and standardizing the same
- ✓ The importance of interview method in collecting the data through verbal and non verbal inter personal interaction

Structure:

- 6.1 Introduction
- 6.2 Observation
- 6.3 Questionnaire method
- 6.4 Schedule
- 6.5 The interview method
- 6.6 Summary
- 6.7 Self assessment questions
- 6.8 Further readings

6.1 Introduction:

If a researcher undertakes a descriptive or analytical types of research and conducts surveys the primary data is to be collected either through observation or some other mode of interpersonal communication. There are various methods of data collection using different tools. Method is the way of gathering the data whereas tool refers to the instrument to be used in observing the method. The following are the important methods.

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

The choice of the one or the other methods depends upon several factors like nature of the study; unit of inquiry; nature of the sample to be drawn; the standard of representativeness required; scale of the survey; the literacy levels of the respondents; the nature of the information required; availability of the human resources and the like.

6.2 Observation:

As Goode and Hatt observe, *observation is at once the most primitive and most modern research technique. It includes the most casual, uncontrolled experiences as well as the most exact film records of laboratory experimentation. Science begins with observation and must ultimately return to observation.* However, the level of observation may vary. What one notices may not be taken note of by the others. One's preferences, alertness, the range and the depth of the knowledge may all contribute to the pattern of observation. The 'seeing' is both physical as well as mental exercise. Viewing and observing is accompanied by perceiving i.e., apprehending with the mind. Observation is a classical method of scientific inquiry. It may be noted that not all phenomena are open for observation and observable things may not find observer.

Definitions:

According to Pauline V. Young, *observation may be defined as systematic viewing, coupled with consideration of seen phenomena.*

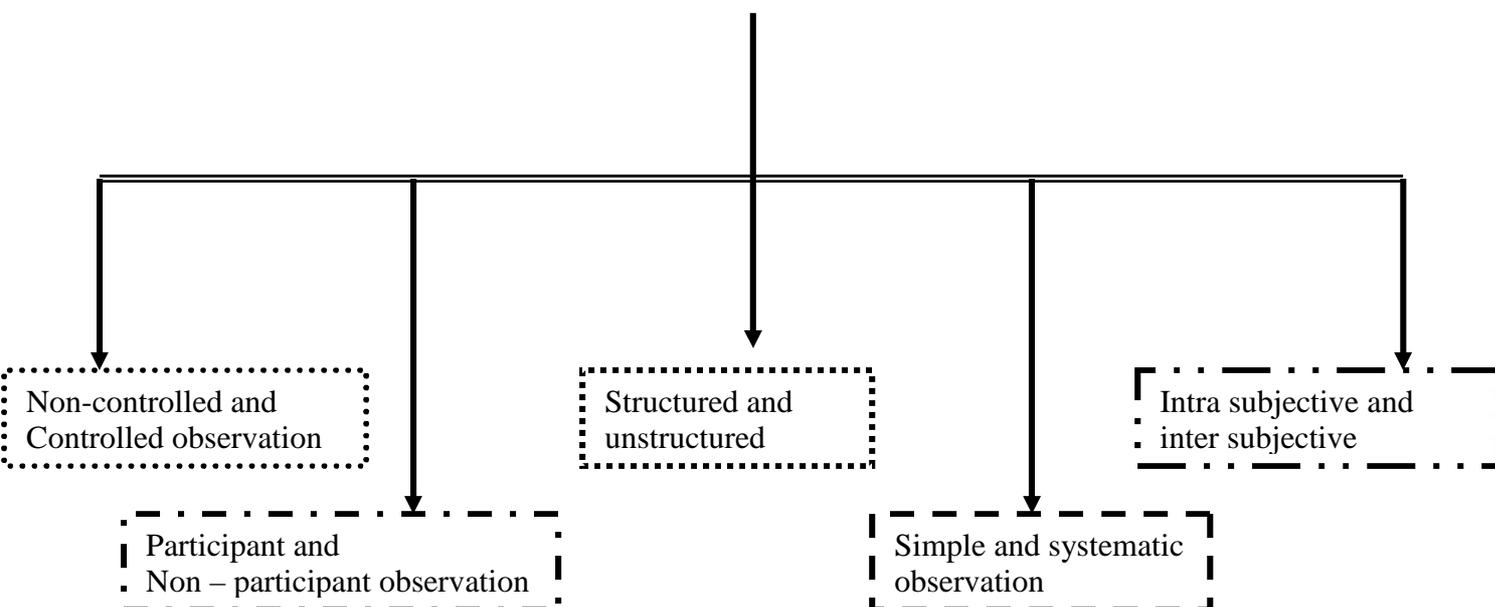
Observation may be defined as a systematic viewing of a specific phenomenon in its proper setting for the specific purpose of gathering data for a particular purpose (Krishnaswamy)

Criteria for observation:

1. Observer should set definite objectives of study
2. Observe larger setting within which a specific setting is observed
3. Describe adequately the character of the social atmosphere of observed situations
4. Observe within the general context of particular study
5. Use observation as a planned technique
6. Bias is removed and no undue relying on memory after a long gap of time
7. Observed in a systematized way with those other discreet and mature observers; applied scientific tests and used control groups.
8. In quantifying the Data precision instruments are used
9. Integrated with other suitable techniques

Pauline V. Young observes, *maxims, no matter how carefully formulated and meticulously followed, will not in themselves provide guidance for the process of observation, unless throughout the study one keeps in mind the types of data and not others within the same context have been selected as the object of observation.*

Types of observation



In a **non-controlled observation** method the observation takes place in a natural setting without any extrinsic or intrinsic variables supplemented or exerted on the respondents i.e., it is a study of social phenomena or situation from outside. A non-controlled observation is based upon subjective interpretation and affects objectivity. It has various limitations. Young points out that such study may give the feeling that we know more about the observed phenomena than what we actually do. The data are real and vivid and therefore, our feelings about them are so strong, that we some times tend to mistake the strength of our emotions for extensiveness of knowledge. In a non-controlled observation no precision instruments are used to collect the data nor any advance planning is made to create a setting. The phenomena or a social situation is studied in its naturalness to get live situations of life and realities surroundings and behaviour. This type of observation is generally applied in exploratory research.

Unlike the above in a controlled observation, observation takes place in accordance with a definite pre-arranged plan and maximum controls of extrinsic and intrinsic variables is reflected, and experimental procedure is scrupulously applied. For accurate standardization precision instruments are used. This type of observation is applied generally in experiments based research.

In a **participant observation** the participant observer shares, to a lesser or greater degree the life and experiences of the observed group. Active contacts at a close proximity facilitates intimate study of the persons. The investigators necessarily identify themselves as part of the group under observation. The degree of participation, however, is dependent on the nature of the study and practical demand of the situation. The investigators get highest degree of insight into the interpersonal relations and phenomena which they would not otherwise get through any other study. In such studies the investigator conceals his real identity, become a part of the group

under study and creates rapport with them. For example life styles and customs of aboriginal groups or tribals can be effectively done through this.

The main advantage in this method is that the researcher gets clear understanding about the emotional intensities and reactions of the observed group as he is a part of it and has scope to study the phenomena or behaviour in its natural backdrop. The problem is studied in the real situation. He will have ample access to the information relating to the group which will not otherwise be available. There will be a scope to check the veracity of the statements made or conclusions drawn. The insights that could be achieved through this method have no parallel.

However, it has its limitations. The major disadvantage of this method is the danger of losing the objectivity as the observer identifies himself with the group and develops some emotional intensities unnoticed. Actual participation may narrow down the range of observation. Initially entering into the group as a stranger may cause distrust and the facts may be distorted by the members of the community in the presence of an outsider until he creates a rapport with them.

According to Kothari if the investigator observes as a detached emissary without any attempt on his part to experience through participation what others feel, it is often termed as **non-participant observation**. The observations are recorded in an unnoticed manner.

In a **structured observation**, the units to be observed are well defined, the techniques of recording the observed data is determined conditions of observation are standardized. If observation is made without any of these pre determined definitions or standards the observation is called **unstructured observation**.

Advantages of observation method :

1. It facilitates the study of behaviour as it occurs directly.
2. It is studied in its natural settings
3. The observation facilitates articulation of the phenomena which is not otherwise possible
4. it is simple and requires less expertise.
5. more accurate and convincing results
6. flexibility
7. opportunity to analyse the contextual background
8. Bias is reduced and errors are reduced
9. Scope for re verification
10. studies of contemporaneous situations

Limitations:

1. Past events cannot be studied
2. Opinions and attitudes cannot be studied

3. Difficulties in obtaining representative sample
4. Researcher has to wait for the occurrence of the event to observe
5. It may not be possible to the observer to be at the place of event as and when required
6. It may be a very slow and lengthy and expensive process

6.3 Questionnaire Method

Questionnaire is a most popular method of data collection and considered as a heart of a social survey. Questionnaire consists of set of pre determined definite questions printed or typed sent to number of persons for their response which can be tabulated and analysed statistically. The respondents answer the questions on their own and return it to the researcher. the researcher does not meet the respondent and does not help the respondent in filling the questionnaire. Generally they are mailed. A proper construction of questions and standardisation is a must for the success of the survey. That is the reason why a pilot study is undertaken in order to validate and standardize the questions.

Characteristics of a good questionnaire

1. The size of the questionnaire shall be at manageable limits, short, simple and compact.
2. Logical sequence has to be followed
3. It should proceed from easy to relatively difficult questions
4. Leading questions shall be avoided
5. The question should be certain, clear and unambiguous and should not give rise to different interpretations
6. For cross checking about the veracity of answers some controlling questions may be asked.
7. Inconvenient and embarrassing questions should be avoided
8. Multiple choice questions or 'yes' or 'no' dichotomous questions may be asked
9. Scope for indicating uncertainty of answers shall be incorporated. For eg. 'do not know'.
10. sufficient space for giving answers shall be given
11. Neat and attractive coverage of the format add to the response.

Guidelines for constructing the questionnaire:

1. Researcher should have good knowledge about various aspects to be covered in a research problem.
2. The researcher should decided on the nature of the questions to be asked, like open or closed ended questions and on the nature of the questionnaire, whether structured or unstructured.

3. The nature of the target group shall be estimated so that the questions may be put based upon their level of understanding.
4. Questions should be arranged in proper sequence
5. The form of questions should be simple, understandable and concrete and the respondent should not feel any difficulty in giving answers let the overall response will be poor
6. Rough draft may be prepared and may be put to revision and standardization and validation
7. A pilot study may be conducted if required.
8. Time and resources to be put to optimum utilization.

Types of questionnaire:

Questionnaire can be either structured or unstructured.

If the questions are predetermined and they are concrete and definite the questionnaire is termed as **structured questionnaire**. Same set of questions are set for all the respondents. The questions are either closed or open ended but stated in advance and there is no scope of changing the questions during the course of investigation. At times the possible answers are also given the questionnaire itself. Structured questionnaire are very easy to administer among the respondents. Highly structured questions where answers are also given helps in saving the time. Wide range of data can be collected through this method. There are inherent limitations over this methods. It does not give scope for giving answers and opinions of respondent in their own words. Attitudes and feeling of the respondent are beyond its scope. It is also not suited well to the exploratory studies to set working hypothesis.

Unstructured questionnaires or non-structured questionnaires do not have rigid, pre determined questions. Here the respondents will be provided with a general guide on the type of information required. The questions that are set are not rigid and may be revised based upon the level of understanding of the respondent and the requirements. Respondents will give their responses in their own words and opinions may also be recorded to the extent possible. For exploratory studies and where structured questionnaire could not be used, non-structured questionnaire is used. Generally for a pilot study unstructured questionnaire is used and for main study structured questionnaire may be preferred.

6.4 Schedule:

There is only marginal difference between a questionnaire and schedule. The Schedules, the formats containing a set of questions, are filled by the researcher or enumerators appointed by him for that purpose, in a face to face contact with the respondents. Some times the schedules will be handed over to the respondents, but the enumerators will be present to clarify and explain the questions. The enumerator's role is vital in filling the schedules. They should be specifically appointed and trained for that purpose. They should have thorough knowledge about the subject

matter and must be able to explain the objectives of the study, put the questions carefully with clarity. They are also expected to put questions for cross checking. The success of the studies based upon the schedule depends upon the sincerity, ability and knowledge of the enumerators.

Distinction between questionnaire and schedules:

Questionnaire and schedule are similar in nature and akin to each other in many respects. The differences, if any, are only technical.

Questionnaire	Schedule
1. questionnaire is sent, preferably through mail to the respondents and there will not be any further interference by the researcher	The schedule is filled by the researcher himself or the enumerators appointed for this purpose and they will be assisting the respondent in explaining the questions
2. Cheap as no enumerators are required	Enumerators or research assistants have to be appointed in order to fill the schedule and they shall be sufficiently trained. Hence cost will be more
3. Low response as it is mailed and many do not respond. There is a possibility of omission of questions. Bias due to non response will be more	Response will be more. But bias of enumerators may be there.
4. Even though the questionnaire is sent to a particular respondent there is no guarantee that the respondent himself gives answers.	Identity of the respondent is assured.
5. Responses may be very slow and time consuming	It will be on time
6. Direct personal contact with the respondents will not be there	Direct contact with the respondent is established
7. Questionnaire can be served only when the respondents are literate	It can be served even if the respondents are illiterate as the schedules are filled by the enumerators.
8. Relatively wide area can be covered	Covering wide area may be proved difficulty

<p>9. in case of doubt over questions no clarification can be given and thus possibility of wrong appreciation of questions resulting in defective data</p>	<p>Possibility of giving clarifications for the questions put is assured and thus the data may be more accurate.</p>
<p>10. the efficacy of the research depends on the quality of questionnaire itself</p>	<p>Besides the quality of questions the honesty and integrity training of the enumerators counts.</p>
<p>11. the format of the questionnaire should be neat and attractive in its appearance</p>	<p>Schedule need not be attractive</p>
<p>12. Questionnaire can not be associated with observation</p>	<p>Observation can be done in the case of schedule method.</p>

6.5 The interviewing method:

Interview is an important tool of data gathering. It is not far from truth to say that every body, formally or informally, knowingly or unknowingly, must have acted both a interviewer and interviewee even at domestic or social fronts. Parents with children, teacher with students as a matter of routine involve themselves in interview. It is not mere verbal conversation. But more than that involving even the study of body language. Mead declares that it is “the conversion of gestures”. Gestures, glances, facial expressions, pauses, even a flick of an eye or mere silence can speak more than verbal exchanges. Behaviour can be judged and attitude can be estimated based upon blush in the face, or laugh, visible happiness or anger. The term itself denotes that it is inter viewing, an interpersonal interaction

Definitions:

Pauline V. Young defines it as *an effective, informal verbal or non verbal conversation, initiated for specific purpose and focused on certain planned content areas*

The oxford dictionary meaning provides that *interview of meeting of persons face-to-face, especially for the purpose of formal conference on some point.*

According to John Madge, *interview is a purposive conversation. The purpose may vary widely in order to include the necessary information*

Kothari observes, *the interview method of collecting data involves presentation of oral or verbal stimuli and reply in terms of oral-verbal responses.*

Objectives of interviewing:

As observed by Adorno it is the task of the interviewer to penetrate the outer and inner life of persons and groups and learn the levels of personality. By psychoanalysis one has to ascertain the opinions, attitudes, values and explore the personality forces in the subject's unconsciousness. In other words a portrait of human personality. The interviewer has to assess inner strivings, tensions, wishes and changes in the behavioural relations of the interviewee. According to Benjamin D. Paul the aims of gathering data through interview is a "*a description of the situation as the field worker sees it , looking from the outside in, and a description as he sees it, looking from the inside out.*"

Types of Interviews:

Sociologists classified the interview into various categories namely, according to their functions, number of persons involved, length of time or type of approach.

1. Non-directive interview:

This also known as uncontrolled, unstructured and unguided interview. No predetermined questions are placed. The interviewee is referred to a concrete situation and allowed free flow of his expression with no direction from the interviewer. The role of the interviewer is confined to round up the discussion, by putting some questions if required.

2. Directive interview:

As Young points out it is a highly standardized technique and a set of predetermined questions. It is useful for administrative and market researches. It is often takes the form of a questionnaire.

3. Focused interview:

Focused interview is a semi standardized interview. It is proceeded with the persons who are involved in a particular concrete situation; the situation is analysed prior to the interview; an interview guide is prepared outlining the parameters of the inquiry and hypotheses and required source of data; it is related to the experiences, attitudes, emotional responses about the situation under study.

4. The repeated interview:

Repeated interviews are resorted to analyse the changing moods of the respondents over a particular social phenomena like voting preferences. As Young opines the repeated interviews are expensive in time, energy and money, but it offers the advantage of studying the progressive actions and events as they actually occur or of studying attitudes in the process of formation.

5. The depth interview:

According to Karpf it is deliberately aims to elicit, unconscious as well as other type of material relating especially to personality dynamics and motivations. A depth interview is generally a lengthy procedure designed to encourage freer expression of affectively charged information. It can reveal important aspects of psycho-social situations which are otherwise not readily available and yet may be crucial for understanding observed behaviour and reported opinions and attitudes. Depth interview may be projective or non projective based upon the nature of the questions asked.. Depth interview requires great skill and training on the part of the interviewer.

In the legal field 'rapid fire questioning' may be useful. It has dual advantage of getting maximum material in a minimum time and there will not be any time to the respondents to give premeditated answers as the answers are given spontaneously.

Techniques of Interviewing

1. **preparatory thinking:** preparation and planning well in advance serves the purpose of interviewing very well. Abraham Lincoln once reported to have said that when he was preparing for interviewing a person he would spend one third of his thinking towards what he would say and two thirds as to what interviewee would say. He must fix suitable time and place for the interview taking into account the daily routine of the interviewee. Introduction should be friendly with friendly greetings. If the study relates to some group or community the leader of the group may be contacted and interviewed first so as to enlist his cooperation.
2. **approach to the interview:** after the initial greetings, purpose of the interview be properly explained taking into account the level of understanding of the interviewee. Creation of **rapport** is the major responsibility of the interviewer. He should motivate even the disinterested person to react to him and involve themselves in the interview. Success of the interview depends upon the enlisting the cooperation of the interviewee.
3. **Researcher should be a sympathetic and respectful listener:** Ability to listen with understanding, respect and curiosity is the gate to communication. However it may be noted that a good listener must be a good analytic listener too. People tell you more when you are looking at them with understanding and sympathy.

4. **Rationed and timely questions:** During the course of the interview restimulation is required. Further the required information may be obtained by putting questions timely and wisely rationed.
5. **The critical points in the interview:** during the course of the interview there will be a situation where the discussion enters into the intimate subjects and the aspects which stir the emotional intensities. This may cause the break down of the interview. The skill of the interviewer lies in overcoming these critical points. Postponing the questioning or diverting the topic or indirect way of questioning and the like may be considered in this regard.
6. **Closing the interview:** best results of the interview can be achieved if the interview is temporarily closed when both the interviewer and interviewee are still fresh and willing to share again. The closing of the interview shall be like smooth landing.

Advantages of interview method:

1. Detailed information with in depth study can be obtained by this method
2. If the interviewer has proper skill he may be able to get perfect sample of the general population.
3. Flexibility is assured
4. Observation method can be usefully associated
5. Intimate and personal data can be obtained
6. Non response is low
7. The response can be controlled
8. Non verbal gestures and feelings can be observed
9. Interviewing can be done based upon the level of understanding of the interviewee
10. The researcher may be able to get incidental information about the nature of the interviewee which may become usefl

Limitations:

1. It may prove to be more expensive and time consuming if the data required is from a large group or geographical area.
2. In view of the rapport that is developed and if the interviewer becomes part of the emotional intensities, the objectivity is lost and results will be tainted with bias.
3. Certain sections of people may be unapproachable either because of their status or the social milieu. Thus data may be in adequate
4. Creating rapport in a short time may be a difficult proposition.
5. Over stimuli or reaching critical points in the interview may take the whole task to the point of no return.
6. Skill and training of the interviewer may directly affect the interview and it may result in systemic errors

6.6 Summary:

Observation, questionnaire, schedule are important methods of data collection. These methods are not mutually exclusive but may be associated with one another for proper results. Observation, if scientifically undertaken, with systematic planning, with checks and balances, it would be a good method for data collection. Questionnaire is a sophisticated and more popular method of data collection. It is considered as the heart of the survey. The general form, question sequence, formulation and wording, if carefully undertaken, the results would be authenticated. Schedule is a variance of the questionnaire with main difference that the questions in schedule are filled by the researcher or the enumerators who are appointed for that purpose. Interview is considered more as an art than of science. Interaction that takes place in an interview is more complex than in any other method. It is not an easy task to record the cognitive and emotional responses of the interviewee. Inter personal rapport is a key word for the success of the interview method.

It may be noted that the choice of one or the other method depends on the nature of the research problem

6.7 Self assessment questions

1. Explain observation method of data collection. What are the various types of observation?
2. What is a questionnaire? What are the guide lines to frame a questionnaire?
3. Distinguish between a questionnaire and schedule.
4. Explain interviewing technique. What are the various steps in interviewing?
5. Write notes on the following
 - (a) Focused interview
 - (b) Participant observation
 - (c) Structured questionnaire

6.8 Further Readings

1. Runkel, P.J., *Research in human behavior* (1972, Holt, New York)
2. Kothari, C. R., *Research Methodology* (1990, Wiley Eastern Ltd., New Delhi, 2nd Edn)
3. Young, Pauline V., *Scientific Social Surveys and Research*, (1982, Printice Hall Int., New Delhi, 4th Edn.)
4. Goode J. William and Hatt, Paul K, *Methods in Social Research* (1981, McGraw-Hill Int. Singapore)
5. Moshin, S.M., *Research methods in Behavioural Sciences*, (1989, Orient Longman, Calcutta)

Social Survey

Objectives:

The instructional plan involves in imparting the students the skills in using survey method in research. It specifically aims at

- ✓ To make the student aware about the concept of survey method
- ✓ To bring in the knowledge about its utility in comparison with the experimental method
- ✓ To impart the student the knowledge about various stages involved in survey method and
- ✓ To make him aware the limitations and methods to over come the same

Structure

- 7.1 Introduction
- 7.2 Meaning and definition
- 7.3 Characteristics of survey methods
- 7.4 Classifications of Survey
- 7.5 Differences between Survey and experiment
- 7.6 Stages in survey method
- 7.7 Advantages of survey method
- 7.8 Disadvantages of survey method
- 7.9 Summary
- 7.10 Self-assessment questions
- 7.11 Further readings

7.1. Introduction:

Survey method is extensively used in socio-legal research especially in gauging the behavioral aspects. It is widely used because of its flexibility. It is useful in formulating the hypothesis or in its advance to test the hypothesis. It is one of the earliest research strategies used. It is like field study carried in the real-world situation. The data or information is elicited in a relatively neutral setting by reaching the respondent in his home, work place or where he is ordinarily available (Runkel and McGrath). The importance of survey research to gather public opinion on issues of public importance has become very popular in recent times. Careful planning and execution is vital for the successful results of the survey. Attention has to be paid on proper sample selection, constructing the questionnaire and minimizing the errors.

7.2. Meaning and definition:

The word Survey is derived from the words 'sor' or 'sur' (means over) 'veir' or 'veoir' (means see). The word survey etymologically means to 'over see'.

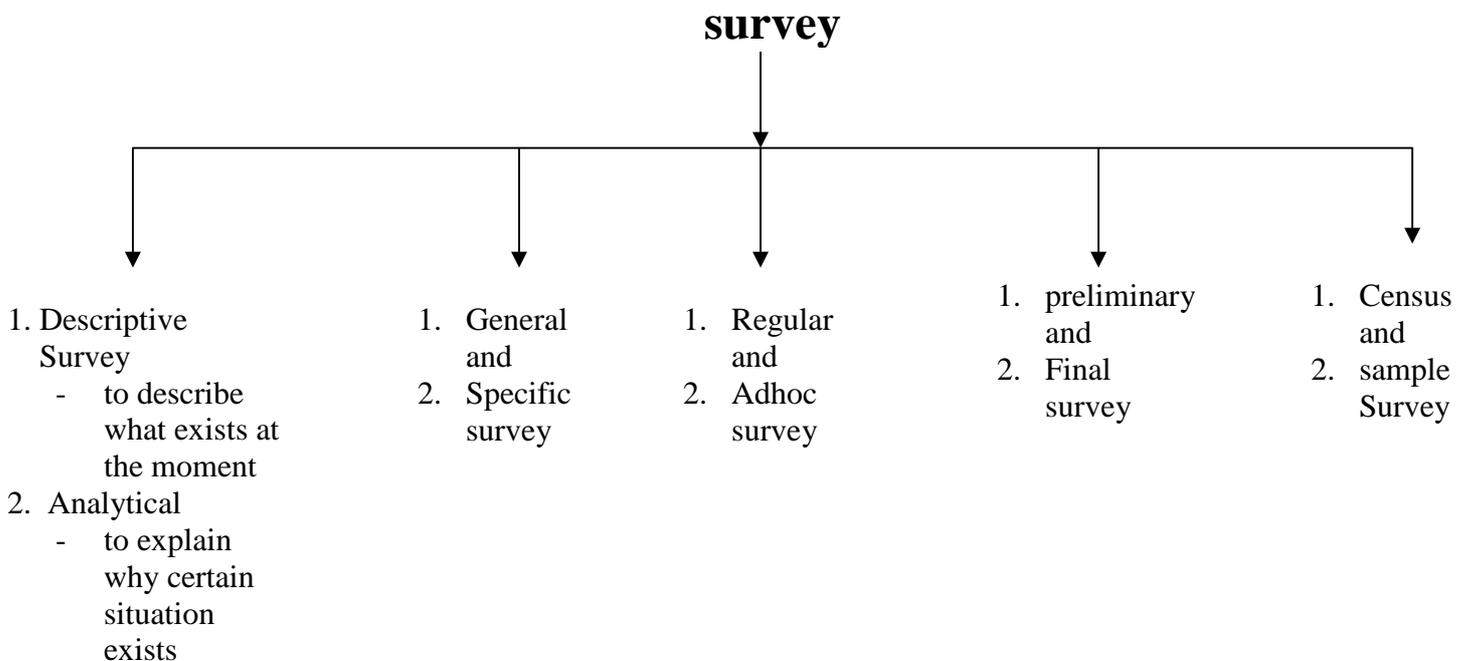
According to Mark Abrams *a social survey is a process by which quantitative facts are collected about a social aspect of a community's composition and activities.*

According to Herman N. Morse *the survey is in briefly a method of analysis in a scientific and orderly form for a defined purpose of given social situation or problem or population.*

7.3. Characteristics of survey:

- (a) it is a technique of investigation
- (b) it is a direct investigation or collection of material by using tools of interview and questionnaire
- (c) it relates to contemporaneous problems of the society
- (d) it is conducted in the live situations
- (e) it aims at supply of information over a problem or description or explanation of a phenomena
- (f) it aims at formulating the hypothesis or testing the same
- (g) surveys are conducted generally with appropriate sampling design though it is also used for census survey

7.4. Classification of Survey:



Based upon the tools used for collecting data in survey method the survey is classified into

1. Interview Survey
2. Questionnaire survey
3. Telephone interview
4. Group survey
5. Panel survey

7.5. Differences between Survey and Experimental methods:

Survey	Experiment
1. Generally used in descriptive research	Used in experimental research only
2. Large samples are preferred in view of possible low response from the respondents and also to eliminate error	Need only small samples
3. Researcher does not manipulate the variable or arrange events to happen	Variables are deliberately and methodically manipulated in order to attain the results.
4. Survey is generally used for social or behavioral research	Though used in social sciences, it is mostly used in high in physical and natural sciences
5. Surveys are widely used in field research	Used in laboratory research
6. Surveys are concerned with hypothesis formulation and testing in order to establish relationship between non manipulate variables	This method is more sophisticated in developing organized knowledge. The relationship that is established between variables will be universally applicable
7. the tools of data collection are varied like interview, questionnaire, observation and the like	Data is collected by several reading applying the same experiment
8. Rigid research design has to be adopted in order to eliminate bias, attain reliability and removal of errors in establishing causality.	Accuracy is the very basis for experimental method and design does not allow errors.
9. the relationship between the data and relatively unknown units in the universe can be studied through surveys	The experimental method establishes such relationship
10. Correlational analysis considered important	Causal analysis is more important

7.6. Stages in Survey Method:

After choosing the research problem and making a preliminary survey of the literature the following steps may be considered.

1. Deciding the suitability of the Survey Method
2. Sampling design as applicable to the problem
3. Nature of the data to be collected
4. Choice of the tool of data collection (like, questionnaire, interview, observation etc.)
5. Pilot study
6. Cost and time involved
7. Organizing the Survey
8. Analysis of data collected
9. Findings and conclusions
10. Report writing

7.7. Advantages of Survey method:

- (a) Surveys can be used investigate the problems in their real and natural settings.
- (b) They are cost reasonable taking into account the amount of information collected.
- (c) Survey allows the study many variables in a given phenomena and multivariate statistics can be meaningfully utilized for solving the problems.
- (d) Large amount of data can be collected with relative ease
- (e) Ordinarily large amount of primary and secondary data exists for several variables and that can hel in conducting further surveys.
- (f) Emotional impacts, attitudes and values and other behavioral aspects can be studied
- (g) In view of the large data bias and errors are minimized
- (h) In view of the adoption of rigid research design the scope of manipulations are minimized.

7.8. Disadvantages of survey method:

- (a) Survey is not considered accurate and perfect method for data collection
- (b) Independent variables cannot be manipulated as in the experimental method
- (c) Element of bias cannot be avoided as it is inherent in preparing questions or interviewing
- (d) The usefulness of survey is heavily dependent on the choice of sampling technique

- (e) The response rate will be low
- (f) Does not have parsimonious effect and involves heavy expenditure and time consuming
- (g) Not applicable to historical research

7.9. Summary

In spite of its limitations the survey is a preferred method because it deals with this population and their problems. It provides reasonably satisfactory results and provide basis for policy makers to act upon in bringing changes in the policy and the laws. An empirical socio-legal research without using survey method would be tinsel.

7.10 Self - assessment questions:

1. What is a survey? Distinguish between a Survey and experiment
2. What are the characteristics of survey? What are its advantages?
3. What are the various types of survey?

Recommended Readings:

1. Runkel, P.J., *Research in human behavior* (1972, Holt, New York)
2. Kothari, C. R., *Research Methodology* (1990, Wiley Eastern Ltd., New Delhi, 2nd Edn)
3. Young, Pauline V., *Scientific Social Surveys and Research*, (1982, Printice Hall Int.,New Delhi,4th Edn.)
4. Goode J. William and Hatt, Paul K, *Methods in Social Research* (1981, McGraw- Hill Int.)

UNIT -8**CASE STUDY METHOD****Objectives:**

This lesson is planned

- ✓ To impart the skills of applying case study method to legal research
- ✓ To highlight the importance of associating case study method with jurimetrics
- ✓ To appraise the utility and limitations of the Case Study Method
- ✓ To present various stages of in executing Case Study Method

Structure

- 8.1 Introduction
- 8.2 Definitions
- 8.3 Characteristics of Case Study Method
- 8.4 Sources for gathering data under Case Study Method
- 8.5 Stages in Case Study Method
- 8.6 Advantages
- 8.7 Disadvantages
- 8.8 Summary
- 8.9 Self assessment questions
- 8.10 Further Readings

8.1. Introduction:

Case study method is widely accepted form for qualitative analysis and is a systematic field research technique. This method is adopted for an in depth study of a social unit. That unit may be person, a family, institution or a group. The stress is on careful, complete, vigorous and intensive investigation and analysis of a limited events or conditions and their inter relations. The method is useful for the studies in behavioral patterns. The method was first introduced by Frederic Le Play in the studies of family budget. Hebert Spencer utilized this method in his comparative study of different cultures. Dr. William Healy adopted this method in his study of juvenile delinquency. This method answers the deficiencies of the researches solely based upon statistics. The main advantage of this method is that it gives integrated totality of a given unit.

The basic premise is that though the behavior of human beings varies there is underlying commonality in the human nature. Thus studying a unit in its natural setting or history in a comprehensive manner give us meaningful conclusion. Human beings are different from one another but human nature is same.

8.2. Definitions:

According to H. Odum *case study method is a technique by which individual factor whether to be an institution or just an episode in the life of an individual or a group is analysed in its relationship to any other in the group.*

According to Pauline V. Young, *a case study is a method of exploring and analyzing of life of a social unit, be that a person, a family, an institution, cultural group or even entire community.*

Stuart A Queen opines, *the case study is the examination of a single situation, persons, groups or institutions as complex whole in order to identify types and processes.*

8.3. Characteristics:

- (a) A study of single unit or group or situation are taken
- (b) The study is in depth and intensive with minute details
- (c) It may take longer periods for such study
- (d) Complex factors in a given unit are completely studied
- (e) The stress is on qualitative approach and not on quantitative approach
- (f) Effort is made to know the mutual inter-relationship of causal factors
- (g) Behavioral patterns are studied by direct approach
- (h) It may lead to the formulation of further hypothesis and testing the hypothesis
- (i) Leads to accumulation of generalised knowledge.

8.4. Sources for gathering the data under case method:

- (a) Personal documents like diaries, autobiographies and memoirs are the important sources for data collection under case study method as it gives clues of behavioural patterns and insight into the various facets of the human life. It also provides information about the events, situations and vast knowledge about the nature of the problem
- (b) Life history documents are drawn based upon interviews and projective techniques. It depicts the social milieu, impact of the events, motivating factors and the like.

7.5. Stages in case study method:

- (a) Determining the status of the phenomena or unit to be investigated
- (b) Scanning the history of the given phenomena and collection of data
- (c) Identifying and diagnosing the causal factors for remedial measures
- (d) Case work – by applying the remedial measures
- (e) Follow-up programme to assess the effectiveness of the remedies

7.6. Advantages:

- (1) Case study deepens our perception and give us clearer insight into life (Charles Horton Colley)
- (2) It gets at behaviour directly and not by an indirect and abstract approach
- (3) Several causal factors like inner strivings, tensions, motives etc that molded one's behavioral patterns can be clearly studied
- (4) It is helpful in studying the natural history of a unit and its relationship with environmental forces or social factors
- (5) Helps in formulation of relevant hypothesis and the data collected there for is useful in testing the hypothesis. Helps in the accumulation of systematic knowledge.
- (6) Social researchers frequently use case method as it facilitates careful, comprehensive and intensive study of the phenomena of a social unit.
- (7) Comprehensive knowledge obtained through case study method can be useful in formulating the questionnaires, schedules etc to collect the research data.
- (8) Use of effective research tools such as interviews, questionnaire, personal documentary source etc can be done under case method.
- (9) Case method is a mode of organizing the data and is useful in getting the nature of the units as well of the nature of the whole universe.
- (10) It appraises the past-history and suggests remedies for the present environmental situation.
- (11) It provides real record of experiences and provide authenticated sociological material
- (12) It facilitates the study of social changes in their correlation to law
- (13) They are useful for policy making

7.7. Disadvantages:

- (1) It is not useful in drawing analogies and comparisons
- (2) It does not provide impersonal, universal, non-ethical, non- practical and repetitive aspects of a phenomena (Read Bain)
- (3) In view of the limited number of units of study broad generalizations are not possible and may result in false generalizations
- (4) Involves more expenditure and time
- (5) Because of subjectivity in recording the data collected is vitiated
- (6) Sampling technique is absent in case study method and hence not use full to study big universe
- (7) Responses for the investigator is a major limitation.

7.8. Summary

The advantages of case study method outweigh its limitations. It is a meaningful method in legal research of judicial attitude and judicial biographies. It is helpful in jurimetrics which is a neglected field of research in India. Use of jurimetrics coupled with case study method removes limitations that are associated both with jurimetrics and case study method. The limitations over the collection of statistical data can be removed by such arrangement.

7.9 Self assessment questions:

1. Explain the utility case study method in legal research
2. What is case study method? What are its limitations?
3. What are the various stages in the case study method? What are the advantages in adopting case study method?

7.10 Recommended Readings:

1. Runkel, P.J., *Research in human behavior* (1972, Holt, New York)
2. Kothari, C. R., *Research Methodology* (1990, Wiley Eastern Ltd., New Delhi, 2nd Edn)
3. Young, Pauline V., *Scientific Social Surveys and Research*, (1982, Printice Hall Int., New Delhi, 4th Edn.)
4. Goode J. William and Hatt, Paul K, *Methods in Social Research* (1981, McGraw-Hill Int.)

UNIT -10

Projective Techniques

Objectives:

The present lesson is planned to

- ✓ Appraise the students the techniques to assess motives and attitudes of the respondents
- ✓ To initiate the students to various indirect interviewing techniques
- ✓ To appraise the students about the utility of projective techniques in legal research.

Structure:

- 10.1 Introduction
- 10.2 Types of Projective Techniques
- 10.3 Summary
- 10.4 Self assessment questions
- 10.5 Further readings

10.1. Introduction:

Projective techniques are widely used in motivational researches and attitudinal surveys.

Projective method is an indirect method of gathering information from a person about his needs and purposes, thoughts and aspirations, difficulties and problems, attitudes and feelings, without himself being aware of supplying the information. (Moshin) Projective techniques are used to elicit information from the respondents who tend to reveal unconsciously his attitude, feelings towards the subject matter under the study. Some times the projective techniques are also termed as indirect interviewing techniques (Kothari). These techniques are developed by psychologists to infer motives or intentions of the respondents which they would not otherwise reveal. Projective techniques require specialized training and expertise to administer. In the process of using these techniques the external stimuli is used. The stimulus may be an object like a portrait, symbol an inkblot and the like. Based on the response to the stimuli inferences are drawn based upon some pre-established psychological conceptualization.

10.2. Types of Projective Techniques:

- (i) **Word association tests:** This technique is a quick, easy to administer and frequently used in advertising research and qualities associated with brand name. Generally 50 to hundred 100 words are administered to the respondent and they will be required to give their response with suitable matching word which occur to their mind without thinking much. The analysis of the matching words give the clue whether particular word can be used for the intended purposes.

(ii) Sentence completion test: This method is used often to develop hypothesis and in the construction of questionnaires. In this technique the respondent will be served with incomplete sentence and he will be asked to complete the sentence. On the same subject several sentences may be served. These are analysed to ascertain the views of the respondents. This technique is an extension of word association test. This may pose problems in administering it to multi dimensional responses.

(iii) Story completion test: here the respondent is given a story line focusing on the subject matter under study and will be asked to complete the story. Inferences are drawn based upon the responses.

(iv) Verbal projection tests: here the respondents motivations are drawn from his verbal reactions to the other's acts.

(v) Pictorial techniques: following are some of the pictorial techniques

- (a) Thematic Appreciation Test (TAT):** the respondent will be supplied with set of picture, some are clear and others are ambiguous. Based upon their description of the pictures the inferences about the respondent's attitude and motives are drawn.
- (b) Rorschach Test:** pre printed symmetrical but meaningless ink blot (10 in number) cards are supplied to the respondents. Their responses describing in their own way are analysed based upon predetermined psychological frame.
- (c) Rosenzweig Test:** cartoon pictures with empty balloon space above will be given to the respondents asking them to fill the balloon space with his own words. Based upon his response inferences are drawn.
- (d) Holtzman Inkblot Test (HIT):** this is an improvement over Rorschach Test. Here 45 inkblot papers based on color, movement , shading are used. Only one response per card is obtained from the subject. It is interpreted at three levels for appropriateness. From this 'accuracy'(F) and 'inaccuracy' (F-) of respondents' perceptions are estimated. The respondent's affectional and emotional needs are ascertained based upon his color and shading options. His dynamic aspects are assessed based upon movement responses.
- (e) Tomkins-Horn Picture Arrangement Test (THPAT):** twenty five sequential plates containing sketches are used in this method. The respondents will be asked to arrange the sequence of these plates according to their perception and based upon their reasoning. The responses are analysed based upon certain norms of interpretation. These are generally used for group administration

(vi) **Play Techniques:** Manipulative games are administered to the respondents and they were asked to play freely. The manner in which they organize and play, will be the basis to know their traits and emotional intensities. Doll Play Test administered to the children is one such technique.

(vii) **Quizzes, tests and examinations:** Abilities, memorizing capabilities are gauged by using different format and methods.

(viii) **Sociometry:** It is a recently developed technique to study the motives of the respondents and to describe the social relationship among individuals including acceptabilities and repulsions. Sociogram charts highlighting the sociometric choices are used for this purpose. According to Giles *under this an attempt is made to trace the flow of information amongst groups and then examine the ways in which new ideas are diffused. Sociograms are constructed to identify leaders and followers*

10.3. Summary:

The students of socio legal research often face problems in estimating the underlying motives, attitudes and desires of the respondents. Projective Techniques are vitally useful in such cases. Especially when they are faced with the respondents having stigma like divorce unless these indirect methods are used the relevant information cannot be obtained. In choosing the appropriate techniques or developing one such technique the researcher requires special training so that they will be able to create a stimulus situation to obtain effective responses.

10.4 Self Assessment Questions:

1. Examine the utility of Projective Techniques in making inferences about the motives, attitudes and intentions of the respondents.
2. What are the various kinds of Projective Techniques? How far they are useful in legal research?
3. Write a note on the following:
 - (a) T A T
 - (b) H I T
 - (c) Sociometry

10.5 Recommended Readings:

1. Runkel, P.J., *Research in human behavior* (1972, Holt, New York)
2. Kothari, C. R., *Research Methodology* (1990, Wiley Eastern Ltd., New Delhi, 2nd Edn)
3. Young, Pauline V., *Scientific Social Surveys and Research*, (1982, Printice Hall Int.,New Delhi,4th Edn.)
4. Goode J. William and Hatt, Paul K, *Methods in Social Research* (1981, McGraw-Hill Int. Singapore)
5. Moshin, S.M., *Research methods in Behavioural Sciences*, (1989, Orient Longman, Calcutta)