Research is a method of reflection of thoughts applying many tools, procedures, mechanism and instruments to draw a clear solution of the problems. The first stage of research is a selection of problems and data collection and reach to the facts and draw conclusions. Research start with problems and problems selected are always based on society. Problem selection has been a crucial task. It emerges with change and circumstances. After the problem is selected, other process are followed like data collection which is a collection of facts, analyse the data by many manual or mechanical process. Analysis is made critically and lastly draw conclusion, which is supposed to be future guideline.

Conclusion is based on evidences, through original work. It has no place for more exercise or personal opinion. It involves genuine desire about measurement and how it came to conclusion. Research is effect of reflecting thinking and other aspects like (i) definite feeling (ii) emerging problem and (iii) a concrete form.

The solution in the form of hypothesis which is tentatively accepted and examined objectively. It is further evaluated through all evidences obtained and finally corporate as conclusion at or within a particular time. Therefore, research is nothing but an intellectual process based of thinking and need where a problem perceived.

It is divided in constituent elements and analysed in the light of certain elements and assumptions which may be based on valid or relevant data collected; hypothesis which may be accepted, revised and proved or rejected. However, this definition involves many factors i.e. (i) problem (ii) constituents (iii) assumptions (iv) hypothesis (v) evidences obtained (vi) collaboration/relation (vii) finally investigation.

Dr. Ranganathan defines, research as a investigation which is critical and exhaustive and discover the facts and interpreted in the light of ideas, laws and theories and draw conclusion practically.
3.1 SIGNIFICANCE OF RESEARCH:

Problems are many and until these are taken in account of solving process, it remains a defective point in a society. Problems are to be solved in time.

It has many factors which indicate the significance of research:

(i) Research is media of solving a problem,
(ii) It discover the cause and effect of the problem,
(iii) It emphasis the development of generalisation, principles and theories to predict the future observation,
(iv) It is based on experience and empirical evidences,
(v) It is based on detailed and valid description and observation,
(vi) Research is an important task as based on proper design and procedure to apply for analysis,
(vii) Research is an expertise method,
(viii) It is logical and have objectively to make the procedure valid,
(ix) It is necessary method which involves careful recording and reporting,
(x) It requires active attention and careful application for data collection and analysis.

Research is a searching method based on honesty, intelligence and searching the facts and their implication to draw conclusion. Research means further research on the problems already taken for research and conclusion drawn. Research produce new knowledge to the knowledge already existed. Scientific research is a cumulative effort and process. It wipeout unrelated and absurd knowledge and create new knowledge.

There are many types of research, i.e. (i) Observational research (ii) Empirical research (iii) Fundamental research (iv) Applied research (v) Inductive and deductive research (vi) Survey research.

Observational research is process and analysed by observation method. The phenomena of problem is reviewed by observation with a particular purpose. Observation becomes a scientific tool and planned systematically and checked on validity and reliability. Observation make close contacts on personal level to seek required information.
Observation research includes, experimental and survey research according to S. R. Ranganathan.

Empirical research also involve observation/experience. It is a matter of fact research and database research.

Fundamental research are based on intellect and perception. It is based on fundamental laws which are taken into research.

Applied research is done for a particular or specific purpose with specific human needs. Such researches are generally conducted in developing countries to find the better ways for the people.

Inductive and deductive research is a theory of fact finding research. Inductive research is based on inductive theories. If a person believes to be an answer to a research questions, he apply it through further testing. Deductive research is a process by which theory is tested from known principles and conclusion drawn using deductive reasoning.

Survey research is based on prearranged set of question. It also present oriented research.

### 3.2 SCIENTIFIC RESEARCH:

It is a research which involves honest, intellectual and exhaustive approach for the search of the facts and an unprejudiced analysis. Such research is a state of mind, a friendly attitude towards change.

- (i) It is more than fact finding,
- (ii) It is census taking,
- (iii) Mere taking of records,
- (iv) Fact gathering,
- (v) Data analysis.

There are two points to be emphased, i.e.

- (i) It is a controlled and systematic research as the investigation is ordered and confidence.
(ii) It is an empirical research based on empirical enquiry and test.

3.2.1 **Scientific Method:**

Knowledge development on science based is a scientific method. It includes four processes:

(i) Problem and its identification,
(ii) Formulation of Hypothesis,
(iii) A systematic approach of collecting, classifying and analysing data,
(iv) Testing of hypothesis and result drawn.

The scientific method applied, but the method varies from one field of enquiry to another. There are four elements:

(i) Combination of facts,
(ii) Formulation of hypothesis,
(iii) The prediction of specific conclusion of hypothesis,
(iv) The testing of prediction.

3.2.2 **Features of Scientific Methods:**

There are following features of scientific method:

(i) Facts and observation must be carefully and accurately classified,
(ii) Scientific law should discovered by creative imagination,
(iii) Mind set for self criticism,
(iv) Collection of facts,
(v) Formulation with hypothesis which is consistent with thoughts.

3.2.3 **Methodology Applied:**

The main purpose of research is to discover answer to the question through application of scientific procedures. The procedure should be such that information gathered should be valid and reliable unbiased.
(a) **Problem:**

The first step is problem that is needed for solution. The researcher should be well known with the problem. The problem and its sub-problems should be specified. Investigation limit should be kept in mind. It is also necessary to study the previous studies to determine the new study.

There are few precautions to decide the problem of research, i.e.

(i) Topic should not be vague,
(ii) Scope and limits should not be broad,
(iii) Problem should be clear eliminating all irrelevant factors relating to problem,
(iv) Special term should be defined, if used for the problem.

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### 3.3 FORMULATION OF HYPOTHESIS:

Hypothesis is a preposition which can be explained as special phenomena. They are tentative suggestion’s which are formulated as preposition, that is called hypothesis. Goode explained hypothesis as a preposition, which can be tested to determine its validity. In other words hypothesis is tentative generalisation, and its validity is tested. It is an elementary stage. It may be a guess or imagination idea which is basis for action and investigation.

However, hypothesis is a preposition, generalisation, imagination or assumption derived on the basis of inductive i.e. reasoning, which may be wrong or right. Hypothesis is a tool and a basis of process for which the problem is studied and tested for. The success and failure of a research work depend upon how test has been formulated. Hypothesis when tested, are either proved or disapproved.

There are few characteristic of hypothesis:

(i) Hypothesis facilitate the extension of knowledge in an era. It extend the existing knowledge.
(ii) Hypothesis is tested logically in relationship, which also explain conditions or events.
(iii) Hypothesis provide direction to research. They represent specific objectives and determine the specific type of data required to test.

(iv) Hypothesis must be conceptually clear.

(v) It should have empirical reference.

(vi) The hypothesis is related to theory.

(vii) The hypothesis should be such that can be put to empirical test.

3.4 COLLECTION OF DATA:

After hypothesis has been formulated, the collection of data is started which is utmost important process. It is the responsibility of the researcher to collect data. Data should be authentic. If data are not reliable and valid, the finding of the study will misleading, inaccurate and inadequate. Data are gathered relating to the problem and in the field selected are observed. Observation is a scientific method with scientific enquiry and procedure for comprehensive events, things, quality and relationship.

3.4.1 Descriptive Research:

This type of research is present oriented research which is described, interpreted and presented but this research should have opinion of the people that exist and then processed. Such effect is known as non-laboratory research. It is based on evidences, trends which are developing in the field or area.

Descriptive research deals with the relationship between variables, testing of hypothesis and development of generalisation, principles and theories which are valid.

Therefore, Descriptive research has following specialisation of activities:

(i) Identification and definition of the problem,

(ii) Deciding assumption on which the hypothesis and procedures have been based,

(iii) Objectives should be clearly mentioned,

(iv) The subject, area and problem should be selected seriously keeping in mind the resources available for the purpose,
A proper selection of tools and their appropriate construction should be made,

Data should be clearly specified and see that they are relevant for the purpose,

Data should be similar in nature and specifically and may be different and different relationship,

Data after collection and establishing their difference, relationship, they should be described, analysed and interpreted in clear and precise terms,

Finally, conclusion should be drawn which should be meaningful and significant for the society.

Descriptive research differs with other research methods in purpose and scope. These are different in cause and effect. It is less scientific than scientific research. In descriptive research variables cannot be manipulated and arrange for events to happen. It covers events which have already taken place.

Descriptive research have varies in complexity. It constitute frequency of events at local problems without any specific purpose. Moreover, it also ascertain interrelationship among phenomena. Descriptive research is conducted generally in social sciences and its objective is social survey of the problems, describing, analysing and interpreting the data and a view to generalisation.

However, Descriptive research is useful to the society. It is useful to data gathering tools, equipments, i.e. questionnaire, schedule, opinion and rating scale.

Descriptive research has following characteristics:

(i) Hypothesis formulation and testing,

(ii) Logical methods of inductive and deductive reasoning is used for generalisation,

(iii) Method of random sample is generally applied to estimated the errors and inferring characteristics from observation,

(iv) An accurate procedures is adopted for variables to replicate other researchers,

(v) Being non-experimental the relationship is estimated between non-manipulated variables in natural and artificial environment.
3.4.2 **Survey Research:**

It is a category of descriptive research. The survey research is also present oriented research. It is suitable for such problems which data is required for setting for generalisation. Research administer data collection through appropriate device and analyse the data. The survey research is more structured for researchers.

However, survey research is though present oriented research, but face many problems in data collection devices and application of instruments. Survey researcher involving many problems needs a systematic procedure of data collection through questionnaire or interview schedule or other appropriate device of observation. In survey research quantitative facts are collected regarding societies composition and activities.

3.4.2.1 **Purpose of Survey Research:**

(i) To provide information to someone,

(ii) Generally it deals with social problems,

(iii) To collect detailed description of existing phenomena,

(iv) To justify current problems, condition and practices,

(v) To make an intelligent plan for improving the condition and practices for improving them,

(vi) To analyse, interpret and prepare a report of the status of the institution, area or a group of people,

(vii) To determine the adequacy of status and compare the status.

(a) Data concerning to existing status,

(b) Comparison of existing status,

(c) Means of improving status.

3.4.2.2 **Characteristics:**

Survey research is a effective way of gathering information from a large number of resources economically and timely. Many tools like questionnaire, interview schedule,
standard tests and data collection techniques are applied, analysis is made and draw a conclusion, which transform many administrative, financial and other practices.

Survey research has following characteristics:

(i) It is cross-sectional,
(ii) It determine the nature of existing state of affairs,
(iii) It clearly define problems and objectives,
(iv) It requires imaginary planning and a careful analysis,
(v) It requires clear interpretation of data, logical and skillful reporting of the findings,
(vi) It provide information useful solution to the problems,
(vii) It may provide data to form the basis of research fundamentally in nature,
(viii) Survey is complex and involves frequency count of events and their relationship,
(ix) It may be qualitative and quantitative both. In one place it defines constituents and elements of various phenomena, while on the other hand, it involves the amount of constituents or characteristics,
(x) Description may be written or verbal or both or expressed mathematically.

3.4.2.3 Process:

The following process is adopted in survey research:

(i) The research problem should be clearly identified and precisely stated,
(ii) Sample desired may be determined,
(iii) Appropriate method of survey be selected,
(iv) The instruments used for survey research may be specified,
(v) Design of data to be decided,
(vi) Data collection should be made,
(vii) Analysis of data,
(viii) Preparation of the report which may have:
    (a) Descriptive phase,
    (b) Comparative phase.
Survey research is not merely clerical routine of gathering and tabulating data. It clearly define problem and objectives.

3.4.2.4 **Merits of Survey Research:**

Survey research is popular in modern societies. It is costly and time conserving.

There are many merits of survey research:

(i) It helps in scrutinising a problem covering all aspects thoroughly and consciously,
(ii) It is useful for administrative guideline and policy making,
(iii) It help in finding the change and trend in a society,
(iv) Data are based on reality because of the personal approach of the researchers,
(v) Data are dependable, authentic and reliable,
(vi) There are less chances of subjectivity.

3.4.2.5 **Demerits of Survey Research:**

(i) Survey requires heavy funds,
(ii) There is a need of training of field workers and investigators and also researchers,
(iii) It is difficult to marshal the requisite economic and human resources,
(iv) In case of more investigators and field workers, it lacks uniformity in data collection,
(v) Every field workers interpret in his own choices and results are bound to be varied,
(vi) It require great efforts to minimise the bias opinions,
(vii) It is time consuming and people cannot wait a long time,
(viii) There is temptation to collect more and maximum information, which create problem of information storage,
(ix) It is based on sample survey and hence it is not full of reliability.
3.5 PREPARATION OF REPORT/THESIS:

Researchers prepare the reports. Writing of report is a systematic process. A great care is required while preparing a research report.

Following points should be taken in mind, while preparing a report:

(i) The report should have following layout:

(a) Preliminary pages.
(b) Main text.
(c) End matter.

The preliminary pages should have acknowledgement and foreword, table of contents, list of tables, list of graphs and charts etc.

(ii) The main text should include the following:

(a) Introduction:
   1. Objectives of the research,
   2. Research methodology applied,
   3. The scope of the study,
   4. Limitations.

(b) Summary of findings:
   1. Statement of findings,
   2. Recommendations.

(c) Main report:
   1. There should be logical sequence in the main report,
   2. All aspects should broken-down in readily identification section.

(d) Conclusion:
   1. Result of the research clearly and precisely,
   2. Final summing up.
(iii) Appendix:

(a) Bibliography (List of books, journals, reports etc.),

(b) Index.

Report should be in simple language. Vague expressions should avoided, i.e. “It seems” and “There may be”.

**RESEARCH PROCESS**

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**3.6 PURPOSE OF RESEARCH:**

(i) Purpose should clearly defined,

(ii) There should be common concept,

(iii) The research procedure should be described with sufficient detail,

(iv) The research design should be carefully planned. So that it may yield results,

(v) The report should be complete and frank,

(vi) The data analysis should be clear in revealing its significance,

(vii) The method of analysis should be appropriate,

(viii) Data should be reliable and valid,

(ix) Conclusion should be justified.
3.7 **BARRIERS IN PROPER RESEARCH:**

(i) Lack of scientific training. A short intensive course on research methodology should be conducted;

(ii) Insufficient interaction. There should be sufficient liaison;

(iii) Lack of confidence,

(iv) Research studies overlap,

(v) No proper code of conduct,

(vi) Lack of timely assistance: Financially and manpower;

(vii) Non availability of timely published data.

3.8 **RESEARCH DESIGN:**

The problem which is formulated to define the research problem is design of research project, known as research design. A research design is constituted by the answer of what, where, when, how much and by what means concerning to an inquiry. It is an arrangement of (i) conditions for collection (ii) analysis of data and (iii) combination of both and their relations relevant to research purpose.

We may say that research design is the conceptual structure within which a research is conducted.

The research design involves the following aspects:

(i) What is study problem,

(ii) Why this study,

(iii) What is the scope of study,

(iv) The nature of data required,

(v) The location of data to be found,

(vi) The period of study,

(vii) What will be the sampling method,

(viii) What techniques to be applied for data collection,

(ix) The process of data analysis,

(x) The style of report prepared.
A research design may be conducted in following part:

(i) Sampling design,
(ii) Observational design,
(iii) Statistical design,
(iv) Operational design.

There are few important features of research design:

(i) It is a task plan which specify the sources and type of information relevant to research problem,
(ii) It works as strategy which identify the approach used to collect/gather and analyse data,
(iii) It also estimate the time and the expenditure involve in research.

Research design is a source of smooth conduction of research operations and make the research more efficient and yield maximum information on minimum cost, labour, time. It is like a blue print of a house to be constructed attractive which is planned by an expert architecture. The research design play a similar game in conducting research.

It stands by a planning of (i) methods, (ii) collecting data, (iii) technique used, (iv) methods of analysing data. It needs extreme care about the error, which may not hurt the objective of the research and reliability is maintained and effective result drawn.

Any wrong understanding and research design may destruct the purpose and mislead conclusion. Therefore, an effective and efficient research design must be prepared with the help of a expert architecture.

A research must have the following qualities:

(i) More emphasis on quality and efficiency of research,
(ii) Helpful in discovering ideas and insights,
(iii) It must have flexibility enough to inherit different aspects of phenomenon,
(iv) Minimises bias and maximise reliability.
3.8.1 **Concept:**

There are various aspects of research design:

(i) **Variables: Dependent and Independent**

A concept which takes different quantitative value is called variables. The main concepts are (i) weight, (ii) height, (iii) income. Qualitative phenomena are also quantified on the basis of present and absence of related attributes. Such variables are called continuous variables, but all are not continuous. Age is continuous and children are non-continuous variables. If one variable depend on other variable, it is dependent variable like height which depend on age, but age and sex are independent variables.

(ii) **Irrelevancy in variables:**

Such variables which are independent, but may affect dependent variables and the purpose of research are known as irrelevant or extraneous variables. Any effect is noticed on dependent variable because of extraneous variables are known as experimental error.

(iii) **Control of variables:**

A good research design should avoid or minimise the effect of irrelevant variables. This minimisation is a control of variables as any such control may increase the research design.

(iv) **Hypothesis:**

Hypothesis is a prediction and tested by scientific methods. Such hypothesis is predictive statement that relates to independent variable to a dependent variable. Usually a research hypothesis contains one independent and one dependent variable. A hypothesis cannot be justified unless its prediction statement is objectively varied relatively, it cannot be termed as research hypothesis.
(v) **Hypothesis which is experimental or non-experimental:**

A research is purposeful and its purpose is tested. This test is a hypothesis. It can be a experimental design and non-experimental design. Research in which independent variables are manipulated is called ‘experimental hypothesis testing design’. But on the other hand a research in which dependent variables are manipulated is called ‘non-experimental hypothesis testing design’.

**For example:-**

Randomly select 50 students out of a group of students to test their intelligence and reading ability of a group of student by calculating coefficient correlation between two sets of scores is known as non-experimental hypothesis tested research as it involves independent variables.

But on the other hand, if a group of 50 students are divided in two groups of 25 students and each group is tested under a specific training programme and their effectiveness is judged on performance level. It is experimental design.

### 3.8.2 Sample Design:

When the field of enquiry is large and Universal is also large and consideration of time and cost almost invariably leads to a selection of respondents and respondents selected are representative of the total population, these are called ‘samples’ and the selection process is sampling technique and the survey based on sample is known as ‘sample survey’.

There are many steps in sampling design:

1. **Type of Universe or object:**

   The first step is the object or the Universe of research design. It may be finite or infinite. Number of items may be finite and infinite as per type of Universe. The population of city, number of workers of a factory come in infinite object, while listeners of radio come in finite object.
(ii) **Sampling unit:**

A sampling unit has to be decided before selecting sampling. The unit may be geographical area, i.e. local, regional, national and international or a construction unit i.e. house, flat. It may be social unit, i.e. family, club, school or an individual. One or more unit may be taken for research purpose.

(iii) **Size of sample:**

It indicate the number of items to be selected from Universe to constitute a sample. The size of sample is a challenge to decide, whether large or small. It may be a optimum sample which means a sample which is (i) reliable, (ii) representative, (iii) flexible, (iv) efficient. The researcher should be satisfied with the sample. The parameter of interest should be kept in view and cost or budgetary constraint should be kept in mind before deciding the sample design.

(iv) **Parameters of interest:**

A researcher should consider the question of parameter interest. There may be a need of knowing the estimated proportion of population. There may be sub-group of population about which we may make estimation.

(v) **Sampling procedure:**

When the researcher decide the type of sample and technique to be used in selecting the items for the sample. This technique and procedure used stand for sampling design. The selection of design should also be according to the size of sample and a given cost. This will occur less errors.

(vi) **Sampling errors:**

Sample errors may be variant in nature as per sample design and size. Since, the errors occur randomly and either equally to the directions or zero. Sample errors may be decreased with the increase in size of sample.
Precision can be improved with large sample, but it has its own limitations. The large size of sample increases the cost of collecting data and hence systematic bias. Thus, it is better to select a better sample design and hence small number of errors.

The sample designs have following special features:

(i) Sample design should represent the truly sample,
(ii) Sample design should have small sampling errors,
(iii) Sample design should be within the budget,
(iv) Sample design should control systematic bias,
(v) Sample design should be resulted to sample study and applied in general with reasonable confidence.

3.8.2.1 Types of sampling design:

The sampling design based on representative basis can be categorised in two types:

(i) Non-probability sampling,
(ii) Probability sampling.

The ‘non-probability sampling’ procedure has no basis for estimating probability and each item in the population is included in the sampling. This sampling has been named as judgment sampling, purposive sampling and deliberate sampling. Items are selected deliberately by the researchers. Choice is also supreme and they so selected out of huge one will be typical or representative of the whole. But there has always been a danger of bias. But if the investigator are imperial, the work without bias to take sound judgment and result will be tolerably reliable.

(i) This type of sampling is convenient,
(ii) It is relatively inexpensive,
(iii) The sample selected certainly do not possess the characteristics of random samples.
‘Probability sampling’ is also known as random sampling or chance sampling. Every item of the Universe has an equal chance of inclusion in the sample. Sample may be a lottery system in which individual units are picked up from the whole group not deliberately, but in some mechanical process.

(i) Random sampling ensure the statistical regularly,
(ii) Sample chosen is random one,
(iii) It gives each element in population an equal probability of getting into the sample,
(iv) It gives each possible sample combination an equal probability of being chosen.

3.9 DATA COLLECTION:

After the research problem has been defined and research design selected the data collection work starts. There are two types of data, i.e. primary data and secondary data. Primary data are fresh collected at the first stage. They are original in character. Secondary data are second stage data. These data have been used prior and already passed through statistical process. It depend on the researcher, which type of data he uses for his study. He will decide which method is to be selected for data collection. Primary data are original and collected originally, while secondary data are merely that of compilation.

3.9.1 Collection of primary data:

Primary data are collected in descriptive research where survey is performed, whether it is a sample survey or census survey. Primary data are obtained through (i) observation, (ii) through direct communication with respondents by taking interview, (iii) through questionnaire distributed personally, by mail or by e-mail.

There are other methods also which are not popular in practice. They are warranty cards, distributor audits, consumer panels, by mechanical device, through projective techniques and content analysis.
(i) **Observation method:**

It is common method of data collection used in behavioural sciences. What we observe around us is not scientifically processed. Observation is a scientific tool and a good method of data collection for research purpose. It is systematically planned and recorded. It is systematically checked and controlled for validity and reliability. Under observation method a researcher or investigator personally observe the things or the work and ask the respondents. The observation method is useful because of many reasons.

(a) There is no subjective bias,
(b) Current information is obtained,
(c) It is not complex by the past and future behaviour,
(d) This method is independent and need no others help and conduct with willingness of respondents,
(e) It need less demand of cooperation.

**Observation method has few limitations:**

(a) It is an expensive method as it includes many expenditures of conveyance,
(b) Limited information is provided,
(c) There may be few unseen factors which may interface with observation work,
(d) Few respondents does not like to say anything in direct observation, which create obstacles.

Therefore, a observatory should keep in mind few precautions i.e. (i) What to observed, (ii) How to observed, (iii) How observation is recorded. The structured observation is defined as the observation which includes a unit for observation, style of recording the information with standardised conditions and selection of pertinent data of observation. On the other hand unstructured observation take place without any characteristics to be thought of in advance.
The participant observation is defined as an observation method in which an observer observe the member of a group and experience the experiences of respondents. Non-participant observation is a method of collecting data when an observer observe as a detached emissary (a person who is sent to deliver an official message) to perform a specific task to experience through participation what other feels, such observation is non-participant observation.

There are also other two type of observation, i.e. controlled and uncontrolled. The observation which takes place in natural way is uncontrolled observation. But when the observation takes place with a planning, with experimental procedures, it is controlled observation.

### 3.9.2 Methods of data collection:

There are three important types of methods of collecting data:

1. Interview method.
2. Questionnaire method.
3. Mechanical device methods.

#### (1) Interview method:

Interview method may be personal interview method or telephone interview method. Personal interview method involves a researcher taking oral/verbal interviews of respondents. It is a face to face contact to other person(s). It is a direct personal investigation or an indirect oral investigation. Interviewer or investigator collect information directly by interviewees the source person. He approach the respondent on the spot, meet him or a group from whom data is collected.

This method is suitable for intensive investigation. The technical device is used. An indirect oral examination may also be conducted and data collected by cross examining other persons who are supposed to have knowledge about the problem under study. Such information is also recorded. An interview may be (i)
Structured, (ii) Unstructured, (iii) Focussed interview, (iv) Non-directive interview etc.

(a) **Personal interviews:**

Usually the data collection through personal interview is carried out in structured way. There is a set of questions and a high standard technique of recording. Questions are asked in a particular form or prescribed order, while unstructured interview have flexibility in approach in questioning. There is no prerequisite questions and no standard technique applied. Interviewer may be allowed a freedom to ask such questions which are not listed before. He may change the sequence of questions. Unstructured interview demand deep knowledge and greater skills on the part of interviewer.

Focussed interview is limited to focus attention on the given experience of the respondents and its effect. The interviewer decide the manner and sequence of questions asked.

Non-directive interview, the respondent is encouraged to talk about the topic and express his experiences, feelings and relief.

Personal interview methods have advantages:

1. More information in depth can be obtained,
2. An skilled interviewer can obtain more and effective information,
3. More flexibility,
4. Personal information can be obtained easily.
5. Sample can be controlled,
6. Language of the interview can be adopted to the ability or educational level of person interviewed,
7. Supplementary information about personal characteristics of respondent can be obtained.
But this method may have few drawbacks:

(i) It is expensive,
(ii) There are chances of bias of interviewer,
(iii) Respondents, sometimes hardly available,
(iv) It is more time consuming,
(v) It needs training of interviewer,
(vi) There may be systematic errors.

(b) **Telephone interviews:**

Data may be collected through telephone or mobile also, though it is not widely used method.

It has few merits:

(i) It is more flexible in comparison with mailing,
(ii) It is faster,
(iii) It is cheaper,
(iv) Recalling is easy,
(v) High rate of response,
(vi) The information can be recorded,
(vii) No field staff is required,
(viii) Information may be widely distributed.

But this method has demerits also:

(i) Sufficient time cannot be given to respondents being expensive,
(ii) Survey is restricted to respondents,
(iii) Extensive survey involved cost consideration,
(iv) More bias on the part of interviewer.
(2) **Questionnaire method:**

It is a popular method. It is more suitable for big enquiries and a research having a large area. This method is adopted by all institutions, organisations and the government agencies. A questionnaire consists of number of questions. Questionnaire is sent by mail to the person concerned with a request to answer the questions. This method is extensively employed in various surveys.

This system is advantageous in many ways:

(i) There is less expensive when area is large,

(ii) It is free from bias of interviewer,

(iii) Respondents have adequate time,

(iv) Large samples, if used, can be made dependable and more reliable.

**There are few limitations:**

(i) Respondents, if educated, may cooperate more,

(ii) Less number of questionnaires are received; if mailed,

(iii) There is less control on questionnaires when sent,

(iv) There is inflexibility, questionnaires cannot be amended when sent,

(v) There may be ambiguous replies or more omission may occur,

(vi) It is difficult to know the willingness of respondents,

(vii) The method is slower.

This method is most useful if pilot survey is conducted. Questionnaire is a heart of survey. If the survey is not properly set up, it is bound to fail. Questionnaire may be structured and unstructured. Structured questionnaire is always precise, concrete and pre-determined and covers precise questions. It is structured with selected words and in some order which may be easy to respondents.

The form of questionnaire may be closed with ‘Yes’ or ‘No’ or tick mark [ ]. It may have alternative questions. A highly structured questionnaire may be having specified questions and answers. Unstructured questionnaire or non-structured
questionnaire may have a guide and type of information to be obtained, but the exact question formation is largely his own responsibility and replies are to be taken down in respondent’s own words to the extent possible. It is simple to administer structured questionnaire. It is inexpensive to analyse. It allow alternative replies which help in understanding the meaning of closely clearly.

(a) **Question sequence:**

Question sequence is more important while structuring a questionnaire. Such sequence-

(i) Ensure quality,
(ii) Respondents pay attention,
(iii) Less chances of misunderstood the questions.

Questions sequence must be clear and smooth-moving. One question relates to other question. Few questions are important as they influence the attitude of the respondent and seeking his desired cooperation.

The following type of questions should be avoided:

(i) Questions should not put strain on the mind of respondent,
(ii) Personal character questions should be avoided,
(iii) Question related to personal health,
(iv) Difficult questions should be avoided.

The question sequence should go from general to more specific. The respondent should have a feeling to answer the questions, but not the question is imposed.

(b) **Question formulation:**

The question must be clear in nature and should not be misunderstood in any way as it may harm the survey. Questions should not be impartial to avoid biased picture of the true state of affairs.

The question formulation should have few standards:
(i) Easily understood,
(ii) Simple in nature,
(iii) Concrete,
(iv) Conform the thinking of respondents,
(v) Question should be more realistic.

So far form of questions is concerned.
There are two main forms:

(i) Multiple choice question form.
(ii) Open-end question form.

In the multiple question form the respondent has the choice of answer the alternative questions. There may be two possible answer of a question usually ‘Yes’ or No’ or can be a closed question.

Multiple choice questions have few merits:

(i) It is easily handle,
(ii) Simple to answer,
(iii) Quick in answer,
(iv) Relatively less expensive.

**But it has some demerits also:**

(i) It is somehow difficult to statistical analysis,
(ii) Alternative replies sometimes needs more elaboration,
(iii) Answer from respondents mouth and they may be forced to answer while sometimes he has no opinion.

On the other hand Open-ended questions permit a free response rather than one limited to certain stated alternative. Answers are given in phrasing style. Respondents reply in own words. But it is more difficult to handle, raising problems of interpretations, comparability and interviewer bias.
Other precautions of preparing a questionnaire are:

(i) Proper words should be selected to use,
(ii) Simple words should be used,
(iii) Ambiguous meaning words should be avoided,
(iv) Danger words, catch words or emotional words should be avoided.

A good questionnaire should have following essentials:

(i) Questionnaire should be short and simple,
(ii) Size should be minimum,
(iii) Questions should proceed in logical sequence,
(iv) Moving from easy to difficult questions,
(v) Personal and intimate questions should put at the end,
(vi) More technical terms or vague expression should be avoided,
(vii) Questions may be in ‘Yes’ or ‘No’,
(viii) There should be controlled questions,
(ix) Questions affecting sentiments should be avoided,
(x) There should always be a provision of ‘Don’t Know’ or ‘No preference’.

(3) Interview schedule:

This is little different with questionnaire. It is filled in by the enumerators who are specially appointed for the purpose. The researcher or its representatives approach the respondents personally and take his interview. Interview is based on a questionnaire framed in advance and space is left for answers.

First the representative explain the aims and objects of the research and remove the difficulty, if the respondent may feel in understanding the questions. The main essential is the enumerator or representative who should be very careful, trained and should know the nature and scope of research. He should be intelligent and should have a capacity of cross-examination in order to find out the truth. He
should be honest, sincere and should not be bias. This method is useful for extensive enquiries. It is very expensive, but open the views and facts about the opinion of respondents.

(4) **Mechanical Device:**

The mechanical device is widely used for collection of data by means of indirect means.

Such devices are:

(i) Eye camera,
(ii) Pupillometric camera,
(iii) Psychogalvanometer,
(iv) Motion picture camera,
(v) Audiometer.

All such devices are helpful in collecting the data and highlight the facts about respondent’s opinion, views, intention and also their bias nature.

(5) **Case study method:**

It is important for qualitative analysis and involves a careful and complete observation of a social unit, whether unit of a person, family, institution, a cultural group or entire community. It is a method of depth study. This method is a technique by which an individual factor, individual or a group is analysed in its relationship to any other in a group. It is an exhaustive study of a person or a form of qualitative analysis.

This method have some characteristics:

(i) A single social unit is selected,
(ii) The unit selected is studied intensively,
(iii) It covers all facts,
(iv) Approach is qualitative,
(v) It may take long period to ascertain the fact.

**RESEARCH METHODOLOGY IN THE PRESENT STUDY:**

The present study is a survey method. Two questionnaires structured (i) One questionnaire for the users and other (ii) a interview residue for librarians, which was a personal approach.

The questionnaires sent to selected users by mail or personally distributed among the respondents to find the answers of questions. On the other hand schedule was framed with selected questions in advance and presented before the librarians or the in-charge of the library to answer the questions through interview and personal discussion.

On obtaining the data, the data were systematically screened and irrelevant answers were separated select the qualitative data for research purpose. Data were analysed and tabulated in a form of tables and diagrams and interpretative made to highlight the facts.