

# ***RESEARCH METHODOLOGY***

***V SEMESTER***

Core Course

( ADDITIONAL LESSONS - MODULE V )

***B A POLITICAL SCIENCE***

*(2013 Admission-CCSS)*



**UNIVERSITY OF CALICUT**

**SCHOOL OF DISTANCE EDUCATION**

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# UNIVERSITY OF CALICUT

SCHOOL OF DISTANCE EDUCATION

## V Semester

### STUDY MATERIAL

*Core Course*

## B.A. POLITICAL SCIENCE

( ADDITIONAL LESSONS - MODULE V )

# RESEARCH METHODOLOGY

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## Module V

# Data collection

The search for answers to research questions is called collection of data. Data are facts, and other relevant materials, past and present, serving as bases for study and analyses. The data needed for social science research may be broadly classified into (a) Data pertaining to human beings, (b) Data relating to organizations and (c) Data pertaining to territorial areas.

Personal data or data related to human beings consist of (1) Demographic and socio-economic characteristics of individuals: Age, sex Race, social class religion marital status, education, occupation, income, family size, location of the house hold, life style, etc., (2) Behavioral Variables: Attitudes, opinions, awareness, Knowledge, practice, intentions, etc.

Organizational data consist of data relating to an organization's origin, ownership, objectives, resources, functions, performance and growth.

Territorial data are related to geophysical characteristics, resources endowment, population, occupational pattern, infrastructure, structure, degree of development, etc. of spatial divisions like villages, cities taluks, districts, state and the nation.

### **Importance of data**

The data serve as the bases or raw material for analysis. Without an analysis of factual data, no specific inferences can be drawn on the questions under study. Inference based on imagination or guess work cannot provide correct answers to research questions. The relevance adequacy and reliability of data determine the quality of the findings of a study.

Data form the basis for testing the hypotheses formulated in a study. Data also provide the facts and figures required for constructing measurement scale and tables, which are analysed with statistical techniques. Inferences on the results of statistical analysis and tests of significance provide the answers to research questions. Thus, the scientific process of measurements, analysis, testing and inferences depended on the availability of relevant data and their accuracy. Hence, the importance of data for any research studies.

### **Sources of data**

The sources of data may be classified into (a) primary sources and (b) secondary sources.

Primary sources are original sources from which the researcher directly collects data that have not been previously collected. Primary data are first-hand information collected through various methods such as interviewing, mailing, observation etc. Secondary sources containing data which have been collected and compiled for another purpose. The secondary sources consist of readily available compendia and already compiled statistical statements and reports whose data may be used by researchers for their studies. E.g., census reports, annual reports and financial reports. Secondary sources consist of not only published records and reports, but also unpublished records.

### **Objective data and subjective data**

Objective data is independent of any single person's opinion, whereas subjective data can be an individual's opinion or it can be dependent upon the researcher.

### **Qualitative data and quantitative data**

Qualitative data is the description of things made without assigning numeric value. For example, facts generated from unstructured interview. It needs researcher's interpretation.

Quantitative data entails measurements in which numbers are used directly to represent properties of things. It is ready for statistical analysis. The larger sample is required in quantitative data, and with proper sampling design, the ability to generalize is also high.

### **Main methods of Data collection**

Most research studies collect fresh data from the respondents even though already existing data are utilized for developing the research design or supplementing the data to be collected. There are various methods of data collection. 'Method' is different from a 'Tool' while a method refers to the way or mode of gathering data, a tool is an instrument used for the method. For example, a schedule is used for interviewing. The important methods are (a) *observation*, (b) *interviewing*, (c) *mail survey* (D) *schedule*. Observations involves gathering of data relating to the selected research by viewing and or listening. Interviewing involves face to face conversation between the investigator and the respondent. Mailing is used for collecting data by getting questionnaires completed by respondents. Experimentation involves a study of independent variables under controlled conditions. Experiments may be conducted in a laboratory or in field in a natural setting. Simulation involves creation of an artificial situation similar to the actual life situation. Projective methods aim at drawing inferences on the characteristics of respondents by presenting to them stimuli. Even method has its advantages and disadvantages.

A researcher can select one or more of the methods keeping in view the above factors. No method is universal. Each method's unique features should be compared with the needs and conditions of the study and thus the choice of the methods should be decided.

### **Observation**

Observation is a basic method of getting information about the world around us. Observation part and parcel of our daily life but many types of data required as evidence to support social research are also obtained through the observational method. The greatest asset of observational technique is that it is possible to record the actual occurrence of social events. While many research technique depend mainly if not entirely on recalling the past events, observational method yields such as are related to real life situations. A trained researcher can even observe and record all the minor details of a community with the help of this technique which to others might seem insignificant.

Observation means viewing or seeing. Most of such observations are just causal and have no specific purpose. But observation in a method of data collection is different from such causal viewing. 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 study. Observation as a method includes both 'seeing' and 'hearing'. It is accompanied by perceiving as well.

Observation is a classical method of scientific inquiry. Observation also plays a major role in formulating and testing hypothesis in social sciences. Behavioral scientists observe interactions in small groups; political scientists observe the behavior of political leaders and political institutions.

Observation may serve a variety of research purposes. It can be used in exploratory research to develop a preliminary understanding of social phenomena. It can be applied to study real life situations as well as to conduct experimental research. Again, it can simply be used to collect supplementary data in support of other tools of data collection. Observation includes the most causal and uncontrolled experiences as well as exact recording as is done in experimentation. In fact, observation is useful for studying simpler as well as complex research problems.

Observation becomes scientific, when it (a) serves a formulated research purpose, (b) is planned deliberately, (c) is recorded systematically, and (d) is subjected to check and controls on validity and reliability. Validity refers to the extent to which the recorded observations accurately reflect the construct they are intended to measure. Validity is assessed by examining how well the observations agree with alternative measures of the same construct. Reliability entails consistency and freedom from measurement error.

### **Characteristics of observation method**

Observation as a method of data collection has certain characteristics.

1. It is both a physical and mental activity. The observing eye 'catches' many things which are slighted, but attention is focused on data that are pertinent to the given study.
2. Observation is selective. Researcher does not observe anything and everything, but selects the range of things to be observed on the basis of the nature, scope and objectives of his study
3. Observation is purposive and not casual. It is made for the specific purpose of noting things relevant to the study.
4. It captures the natural social context in which persons' behavior occurs.
5. It grasps the significant events and occurrences that affect social relations of the participants.
6. Observation should be exact and be based on standardized tools of research such as observation schedule, social-metric scale, and precision instruments, if any.

### **Types of observation**

Observation may be classified in different ways. With reference to investigator's role, it may be classified into (a) participant observation, and (b) non-participant observation. In terms of mode of observation, it may be classified into (c) direct observation and (d) indirect observation. With reference to the rigor of the system adopted, observation is classified into (e) controlled observation, and (f) uncontrolled observation.

### **Participant observation**

In this observation, the observer is a part of the phenomena or group which is observed and he acts as both an observer and a participant. The persons who are observed should not be aware of the researcher's purpose. Then only their behavior will be 'natural'. The concealment of research objective and researcher's identity is justified on the ground that it makes it possible to study certain aspects of the group's culture which are not revealed to outsiders makes it possible to study certain aspects of the group's culture which are not revealed to outsiders.

**The advantages of participant observation are:**

1. The observer can understand the emotional reactions of the observed group, and get a deeper insight of their experiences.
2. The observer will be able to record context which gives meaning to the observed behavior and heard statements.

**Disadvantages**

1. The participant observer narrows his range of observation.
2. To the extent that the participant observer participates emotionally, the objectivity is lost.

Because of the above limitations, participant observation is generally restricted to those cases where non-participant observation is not practical.

**Non-participant observation**

In this method, the observer stands apart and does not participate in the phenomenon observed. Naturally, there is no emotional involvement on the part of the observer. This method calls for skill in recording observations in an unnoticed manner.

**Direct observation**

This means observation of an event personally by the observer when it takes place. This method is flexible and allows the observer to see and record subtle aspects of events and behavior as they occur. He can free to shift places, change the focused the observation. A limitation of this method is that the observer's perception circuit may not be able to cover all relevant events when the latter move quickly, resulting in the incompleteness of the observation.

**Indirect observation**

This does not involve the physical presence of the observer, and the recording is done by mechanical, photographic or electronic devices. This method is less flexible than direct observation, but it is less biasing and less erratic in recording accuracy. It also provides a permanent record for an analysis of different aspects of the event.

**Controlled observation**

This involves standardization of observational technique and exercise of maximum control over extrinsic and intrinsic variables by adopting experimental design and systematically recording observations. Controlled observation is carried out either in the laboratory or in the field. It is

typified by clear and explicit decisions on what, how and when to observe. It is primarily used for inferring causality, and testing causal hypothesis.

### **Uncontrolled observation**

This does not involve control over extrinsic and intrinsic variables. It is primarily used for descriptive research. Participant observation is a typical uncontrolled one.

### **Planning of observation**

The use of observation method requires proper planning.

First, the researcher should carefully examine the relevance of observation method to the data needs of the selected study.

Second, he must identify the specific investigative questions which call for use of observation method. These determine the data to be collected.

Third, he must decide the observation content, viz., specific conditions, events and activities that have to be observed for the required data. The observation content should include the relevant variables.

Fourth, for each variable chosen, the operational definition should be specified.

Fifth, the observation setting, the subjects to be observed, the timing and mode of observation, recording, procedure, recording instruments to be used, and other details of the task should be determined.

Last, observers should be selected and trained. The persons to be selected must have sufficient concentration powers, strong memory power and untrubusive nature. Selected persons should be imparted both theoretical and practical training.

### **Observation Tools and Recording Devices**

Systematic observation requires the use of observation schedule (or observationnaire), diary and various mechanical recording devices.

**Schedule:** The data requirements are identified by analyzing the core of the problem, the objectives of the study, the investigative questions, hypothesis and the operational definition of concepts and out of the data requirements, items of data to be collected through observation are identified. A schedule is then constructed, covering those items of data.

It should be constructed in such a manner as to make it possible to record the necessary information easily and correctly. Enough space should be provided for recording observations for each time. The item should appear in logical groupings and in order in which the observer would observe them.

**Field observation:** This may take the form of a diary or cards. Each item of observation is recorded under appropriate sub-heading. At the time of observation, rough noting may be made, and at the end of the day, full log may be made. The card system is flexible and facilities arrangement and re-arrangement of items in any desired order.

**Mechanical devices:** These may include cameras, tape recorders, videotapes and electronic devices. Still, motion, sound, color and time lapse cameras give a permanent record of events, Microscopic and telescopic lens may be used in cameras.

### **Advantages of observation**

Observation has certain advantages

1. The main virtue of observation is its directness, it make it possible to study behavior as it occurs.. The researcher need not ask people about their behavior and interactions, he can simply watch what they do and say.
2. Data collected by observation may describe the observed phenomena as they occur in their natural settings. Other methods introduce elements or artificiality into the researched situation.
3. Observation is more suitable for studying subjects who are unable to articulate meaningfully.
4. Observation is less demanding of the subjects and less biasing effect on their conduct than does questioning.

### **Limitations of study**

1. Observation is of no use of studying past events or activities. One has to depend upon documents or narrations by people for studying such things.
2. It is not suitable for studying opinions and attitudes.
3. Observation poses difficulties in obtaining a representative sample.
4. Observation is a slow and expensive process. Requiring human observes and/or costly surveillance equipments.

### **Interview**

Interviewing is one of the prominent methods of data collection. An interview is a face to face interaction between two individuals in which a person asks questions from another person in order to gather information. Interview emerged as a tool of data collection by the turn of the last century and has by now become an integral part of social research. During earlier times, interviews were conducted more in the nature of probing conversation. Guided by a careful observer this method was used as a powerful instrument for obtaining information.

It involves not only conversation, but also learning from the respondent's gestures, facial expressions and pauses, and his environment. Interviewing requires face-to face contact or contact over telephone and calls for interviewing skills. It is done by using a structured schedule or an unstructured guide.

### **Importance of interview**

Interviewing may be used either as a main method or as a supplementary one in studies of persons. Interviewing is the only suitable method for gathering information from illiterate or less educated respondents. It is useful for collecting a wide range of data from factual demographic data to highly



personal and intimate information relating to a person's opinions, attitudes, and values, beliefs, past experience and future intentions. When qualitative information is required or probing is necessary to draw out fully, and then interviewing is required. Where the area covered for the survey is a compact, or when a sufficient number of qualified interviews are available, personal interview is feasible.

Interview is often superior to other data-gathering methods. People are usually more willing to talk than to write. Once rapport is established, even confidential information may be obtained. It permits probing into the context and reasons for answers to questions.

Interview can add flesh to statistical information. It enables the investigator to grasp the behavioral context of the data furnished by the respondents. It permits the investigator to seek clarifications and brings to the forefront those questions, that for one reason or another, respondents do not want to answer.

### **Characteristics of interview**

Interview as a method of data collection has certain characteristics.

1. The participants- the interviewer and the respondent- are strangers. Hence, the investigator has to get him introduced to the respondent in an appropriate manner.
2. The relationship between the participants is a transitory one. It has a fixed beginning and termination points. The interview proper is a fleeting, momentary experience for them.
3. Interview is not a mere causal conversational exchange, but a conversation with a specific purpose, viz., and obtaining information relevant to study.
4. Interview is a mode of obtaining verbal answers to questions put verbally.
5. The interaction between the interviewer and the respondent need not necessarily be on a face to face basis, because interview can be conducted over the telephone also.
6. Although interview is usually a conversation between two persons, it need not be limited to single respondent. It can also be conducted with a group of persons, such as family members, or a group of children or a group of customers, depending on the requirements of the study.
7. Interview is an interaction process. The interaction between the interviewer and the respondent depends upon how they perceive each other.

### **Types of interview**

The interviews may be classified into (a) structured or directive interview, (b) unstructured or non-directive interview, (c) focused interview, and (d) clinical interview and (d) depth interview.

#### ***Structured, directive interview***

This is an interview made with a detailed standardized schedule. The same questions are put to all the respondents and in the same order. Each question is asked in the same way each interview, promoting measurement reliability. This type of interview is used for large-scale formalized surveys.

### ***Unstructured or non-directive interview***

This is least structured one. The interviewer encourages the respondent to talk freely about a given topic with a minimum of promoting or guidance. In this type of interview, a detailed pre-schedule is not used. Only a broad interview guide is used.

### ***Focused interview***

This is a semi-structured interview where the investigator attempts to focus the discussions on the actual effects of a given experience to which the respondents have been exposed. It takes place with the respondents known to have involved in a particular experience.

### ***Clinical interview***

This is similar to the focused interview but with a subtle differences. While the focused interview is concerned with the effects of a specific experience, clinical interview is concerned with broad underlying feelings or motivations or with the course of the individual's life experiences.

### ***Depth interview***

This is an intensive and searching interview aiming at studying the respondent's opinion, emotions or convictions on the basis of an interview guide. This requires much more training inter-personal skills than structured interviewing. This deliberately aims to elicit unconscious as well extremely personal feelings and emotions.

### **Advantages of interview**

There are several real advantages to personal interview.

First, the greatest value of this method is the depth and detail of information that can be secured.

Second, the interviewer can do more to improve the percentage of responses and the quality of information received than other method. He can note the conditions of the interview situations, and adopt appropriate approaches to overcome such problems as the respondent's unwillingness, incorrect understanding of questions, suspicion, etc.

Third, the interviewer can gather other supplemental information like economic level, living conditions etc. Through observation of the respondent's environment.

Fourth, the interviewer can use special scoring devices, visual materials and like in order to improve the quality of interviewing.

Fifth, the accuracy and dependability of the answers given by the respondent can be checked by observation and probing.

Last, interview is flexible and adaptable to individual situations. Even more control can be exercised over the interview situation.

### **Limitations of Interview**

First, Interview is not free from limitations. Its greatest drawback is that it is costly both in money and time.

Second, the interview results are often adversely affected by interviewer's mode of asking questions and interactions, and incorrect recording and also be the respondents faulty perception, faulty memory, inability to articulate etc.

Third, certain types of personal and financial information may be refused in face-to face interviews. Such information might be supplied more willingly on mail questionnaires, especially if they are to be unsigned.

Fourth, interview poses the problem of recording information obtained from the respondents, no foolproof system is available. Note taking is invariably distracting to both respondent and the interviewer and affects the thread of the conversation.

Last, interview calls for highly skilled interviewers. The availability of such persons is limited and the training of interviewers is often a long and costly process.

### **Schedule**

A schedule refers to set of questions related to a subject, printed or typed in a definite order. It is a device for securing information whereby a person is asked to answer the given set of questions.

The schedule is an important research tool which facilitates the collection of data from large, diverse and widely scattered groups of people. It can be used to collect quantitative data as well as for securing information of qualitative nature. In most empirical studies the primary research tool is the schedule.

The schedule is administered by the research investigator. It is not self-administered. In the case of the schedule, the answers are obtained from the respondent in a face-to face situation. The responses or answers are noted down by the interviewer, More over, the interviewer can act as a stimulus or can furnish on the spot clarifications to the respondent if required. Thus, a schedule presupposes a face to face interaction between the interviewer and the respondent. When the questions are self-administered and require the respondent to answer all items. When the questions are self-administered and require the respondent to answer all questions by himself it is called mailed questionnaire. Such questions are often sent by mail/post to the respondent. Sometimes they are distributed to a group of people who may have come to attend a conference, with the request that they may fill it up and return the same.

Usually a schedule contains structured items. By structured is meant that questions have fixed wording. They are also typed or printed in a definite order. Thus a particular set of questions having exactly the same wording and sequence is administered to all the respondents.

### **Important considerations in the construction of a schedule**

A schedule should contain a limited number of questions. Only such questions as are extremely important to fulfill the requirements of a study should be included. Questions which may elicit some already known or obvious information should be deleted. Generally, respondents do not like to devote sufficient time and energy for a long schedule.

A schedule is usually divided into several sections. Each section must contain a set of questions related to a particular item or theme. In the light of requirement of the research problem, some

rationale must be developed to include each item or theme. Questions relating to the same general theme must be placed together. Questions placed at the beginning of a schedule should be such that they are able to draw the respondents complete attention. They should be able to evoke his interest. However the opening question should be neutral. In other words, the beginning should not contain any controversial issue as the respondents may develop a negative orientation towards the whole questionnaire. This may lead to tardy responses or even outright refusals.

The researcher should carefully determine the sequence of the different themes covered in a schedule. A gradation of themes starting from simpler ones and gradually leading to complex questions ones should be made. There should be logical sequence of themes as well as questions. The transition from one theme to the other should not be abrupt. Complex questions requiring serious thinking are preferably placed somewhere in the middle of the schedule as the respondent may develop fatigue towards the end and may not give to such questions the attention they deserve.

A crucial aspect of a schedule relates to the formulation of questions. These should be framed in such a way that the researcher may logically expect the answers to be significant for his research problem. A good schedule grows from sound study of the problem and review of literature on the subject. Every item included in the schedule must be related to the objectives of the study. A tentative list of areas on which questions are to be asked is drawn up. It is useful to consult knowledgeable people and conduct interviews to arrive at greater clarity. In the beginning efforts should be made to cover as many items as possible. Gradually the researcher may detect omissions, gaps or ambiguities. Also, he may determine which items are most important and which are not. Any research venture can adequately cover only a limited number of themes directly related to the research objectives. Most of the questions should focus sharply on such important themes. The actual process of formulating questions requires great skill and expertise. A detailed discussion on this aspect runs beyond the scope of this unit.

The amount of space needed for answering open ended questions has to be determined. For example, suddenly the researcher may find that an open ended question needs more space for the answer than has been provided in the printed schedule. Some sort of preliminary exercise helps in assessing this requirement as well.

### **Telephone interviewing**

Telephone interviewing is non-personal method of data collection. It may be used as a major method or supplementary method.

It will be useful in the following situations:

1. When the universe is composed of those persons whose names are listed in telephone directories, e.g., business houses, business executive, doctors, other professionals.
2. When make the respondents are widely scattered and when there are many call backs to make.
3. When the subject is interesting or important to respondents.

4. When the survey must be conducted in a very short period of time, provided the units of study are listed in telephone directory.

**The advantages of telephone interview are:**

1. The survey can be completed at very low cost, because telephone survey does not involve travel time and cost and all calls can be made from a single location.
2. Information can be collected in a short period of time. 5 to 10 interviews can be conducted per hour.
3. Quality of response is good, because interviewer bias is reduced as there is no face to face contact between the interviewer and the respondent.
4. It has higher response rate.
5. It has greater sample control.

**Telephone interview has several limitations.**

1. There is a limit to the length of interview. Usually, a call cannot last over five minutes. Only five or six simple questions can be asked. Hence, telephone cannot be used for a longer questionnaire.
2. The type of information to be collected is limited to what can be given in simple, short answers of a few words. Hence, telephone is not suitable for complex surveys, and there is no possibility of obtaining detailed information.
3. If the questions cover personal matters, most respondent will not cooperate with the interviewer.
4. The respondent's characteristics and environment cannot be observed.
5. It is rather difficult to establish rapport between the respondent and the interviewer.

**Mail survey**

The mail survey is another method of collecting primary data. This method involves sending questionnaires to the respondents with a request to complete them and return them by post. This can be used in the case of educated respondents only. The mail questionnaires should be simple so that the respondents can easily understand the questions and answer them. It should preferably contain mostly closed-end and multiple choice questions so that it could be completed within a few minutes. The distinctive feature of the mail survey is that the questionnaire is self-administered by the respondents themselves and the responses are recorded by them, and not by the investigator as in the case of personal interview method. It does not involve face-to face conversation between the investigator and the respondent. Communication is carried out only in writing and this requires more cooperation from the respondents than do verbal communication.

**Procedure**

The researcher should prepare a mailing list of the selected respondents by collecting the addresses from the telephone directory of the association or organization to which they belong. A covering

letter should accompany a copy of the questionnaire. It must explain to the respondent the purpose of the study and the importance of his cooperation to the success of the project. Anonymity may be assured.

#### Alternative modes of sending questionnaires

There are some alternative methods of distributing questionnaires to the respondents. They are: (1) Personal delivery, (2) Attaching questionnaire to product. (3) Attaching questionnaire in a newspaper or magazine and (4) News stand inserts.

**Personal delivery:** The researcher or his assistant may deliver the questionnaires to the potential respondents with a request to complete them at their convenience. After a day or two he can collect the completed questionnaires from them. Often referred to as the self-administered questionnaire method, it combines the advantages of the personal interview and the mail survey. Alternatively, the questionnaires may be delivered in person and the completed questionnaires may be returned by mail by the respondents.

**Attaching questionnaire to a product:** a firm test- a firm test-marketing a product may attach a questionnaire to a product and request the buyer to complete it and mail it back to the firm. The respondent is usually rewarded by a gift or a discount coupon.

**Advertising the questionnaire:** The questionnaire with the instructions for completion may be advertised on a page of magazine or in a section of newspapers. The potential respondent completes it tears it out and mails it to the advertiser.

**News-stand inserts:** This method involves inserting the covering letter, questionnaire and self-addressed reply-paid envelope into a random sample of newsstand copies of a newspaper or magazine.

#### Advantages of mail surveys are:

1. They are less costly than personal interviews, as cost of mailing is the same throughout the country, irrespective of distances.
2. They can cover extensive geographical areas.
3. Mailing is useful in contacting persons such as senior business executives who are Difficult to reach in any other way.
4. The respondents can complete the questionnaires at their conveniences.
5. Mail surveys, being more impersonal, provide more anonymity than personal interviews.
6. Mail survey is totally free from the interviewer bias, as there is no personal contact between the respondents and the investigator.
7. Certain personal and economic data may be given more accurately in an unsigned mail questionnaire.

#### Disadvantages of mail surveys are:

1. The scope for mail survey is very limited in a country like India where the percentage of literacy is very low.
2. The response rate of mail surveys is low. Hence, the resulting sample will not be a representative one.
3. It is difficult to determine the degree of representativeness of a sample obtained by mail.
4. The causes for inadequate and non-responses cannot be known, and no probing is possible.
5. Information on the personal characteristics of the respondent and his environment cannot be secured.
6. Respondent may not cooperative if the mail questionnaire is long or complex.
7. Several returned questionnaires may contain unanswered questions and incomplete responses.

### **Tools for Data collection**

The various methods of data gathering involve the use of appropriate recording forms. These are called tools or instruments of data collection. They consist of- Questionnaire, observation schedule, interview guide, interview schedule and mailed questionnaire.

Each of the above tools is used for specific method of data gathering: Observation schedule for observation method, interview schedule and interview guide for interviewing, questionnaire for mail survey.

### **Functions**

The tools of data collection translate the research objectives into specific questions/items, the response to which will provide the data required to achieve the research objectives. In order to achieve this purpose, each question/item must convey to the respondent the idea or group of ideas required by the research objective research objects, and each item must obtain a response which can be analyzed for fulfilling the research objectives.

Information gathered through the tools provides descriptions of individuals, institutions or other phenomenon under study. The characteristics may help to explain differences in behavioral pattern and performance of objects under study.

Information gathered through the tools serve another purpose also. It is useful for measurement the various variables pertaining to the study. The variables and their interrelationships are analyzed for testing the hypothesis or for exploring the content areas set by the research objectives.

### **Questionnaire**

Questionnaire depends upon research objectives. For each objective or research questions, list all the associated questions that a researcher wants to answer through study. Then the information required to answer them is listed, and finally, the questions are listed. A questionnaire consists of a set of questions presented to a respondent for answers. The questionnaire is used during structured surveys or interviews. The respondent read the questions, interpret what is expected, and then write down the

answers themselves. It is also called an interview schedule when the researcher asks the questions and records the respondents reply on the interview schedule. Here, the researcher may have to explain questions to the respondents.

There are many options before the researchers adopt this method, but questionnaires should be developed and tested carefully before being administered on a large scale. There are three basic types of questionnaires, closed-ended open ended, and a combination of both.

1. **Closed-ended questionnaire:** closed-ended questionnaires generally include multiple choice questions or scale questions. This type of questionnaire can be at, the administered to a large number of respondents or sample size. As there is set format, the data generated from questionnaire can be easily fed into a computer system for the purpose of analysis.
2. **Open-ended questionnaire:** open-ended questionnaires offer the flexibility to respondents to answer in their own words. It may leave a blank section to write an answer. Closed-end questionnaires might be used to find out how many people use metro rail service in New Delhi, but open-ended questionnaires might be used to find out what people think about the quality of service.
3. **Combined questionnaire:** in this method, it is possible to find out how many people use a service and what they think of the service in the same form. The combined questionnaire may begin with a series of closed-end questions, with boxes to tick or scales to rank, and then finish with a section of open-ended questions or a more detailed response.

### **Observation schedule or Observationnaire**

This is form on which each unit observation for observations of an object or a phenomenon is recorded. This item to be observed is determined with reference to the nature and objectives of the study. They are grouped into appropriate categories and listed in the schedule in the order in which the observer would observe them.

The items are structured with possible alternatives. Space is each unit observation for encircling or checking, or recording, as the case may be.

Provision is made for the correct identifications of each case observed and of the observer.

The schedule should be so constructed as to make it possible to record the observations easily and correctly and to tabulate and analysis effectively.

The schedule must be as devised as to provide the required verifiable and quantifiable data and to avoid selective bias and misinterpretations of observed items. The units of observation must be simple, and meticulously worded so as to facilitate precise and uniform recording.

### **Interview Guide**

This is used for non-directive and depth interviews. It does not contain a complete list of it on which information has to be elicited from a respondent; it just contains only the broad topics or areas to be covered in the interview.



Interview guide serves as a suggestive reference or promoter during interview. It aids in focusing attention on salient points relating to the study and in securing comparable data in different interviews by the same or different interviewers.

There is considerable flexibility as to the manner, and order language In which the interviewer asks the questions. If the interviewer has to refer the guide very often, it would defeat its own purpose. The interviewer cannot listen closely and analytically if his attention rests on the guide. He may fail to respond to the cues and implications of the interviewee's remarks.

### **Interview schedule and mailed Questionnaire**

Both these tools are widely used in surveys. Both are complete lists of questions on which information is elicited from the respondent's. The basic difference between them lies In recording responses. While a schedule is filled out by the interviewer, a questionnaire is completed by the respondent.

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