**DATA COLLECTION, METHODS AND TOOL FOR DATA COLLECTION**

##### Meaning and importance of data

Data and facts and other relevant materials, past and present, serving as bases for study and analyses. Data are the facts and figures collected for statistical investigation.

There are two types of data:

* 1. Primary data,
  2. Secondary data (desk research)

Method of Collecting primary data

1. Observation method
2. Interview method
3. Local correspondences
4. Questionnaire and schedule method

Sources of secondary data

* 1. Personal sources: auto-biography, life history, diaries, letters, memoirs
  2. Public source: I. published source – books, journals, reports, newspapers etc.

1. Unpublished source

**TOOL FOR DATA COLLECTION**

* + 1. Inquiry forms:
       1. Schedule
       2. Questionnaire
       3. checklist
       4. rating scale
       5. Score board
    2. Observation
    3. Interview
    4. Socio-metric techniques
    5. Psychological test

###### TYPES OF DATA

* **Quantitative data:**

It applies various scales of measurement. The experiences of people are fit into standardized responses to which numerical values are attached.

###### Qualitative data:

They are verbal or other symbolic materials. The responses to open ended questions of a questionnaire or a schedule, first hand information from people about their experiences, ideas, beliefs, etc. and selected from content or accepts from documents, case history, personal diaries, and letters are other examples of qualitative data.

###### IMPORTANCE OF DATA

* It serve as the bases or raw materials for analysis
* It provide correct answers for analysis
* It serves the basis for testing the hypothesis
* It helps for constructing measurement scales and tables
* It determine the quality of the findings of the study

###### TYPES OF DATA

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###### SOURCES OF DATA

A significant and distinctive stage of research in any science is the collection of necessary information to prove their hypothesis. For this purpose, the researcher should look to diverse sources which provide the necessary information. The sources of information are generally classified as primary and secondary, while P.V. Young feels that sources of data can be divided documentary and field sources.

There are two sources of data:

1. Primary sources (primary data)
2. Secondary sources-desk research (secondary data)

The primary data are those which are collected afresh and for the first time, and thus happen to be original in character or information collected or generated by the researcher for the purpose of the project immediately at hand.

###### Advantages of primary data

* 1. Primary data are the first –hand account of the situation.
  2. There is a greater scope for reliability of the information.
  3. Primary data are the logical starting point for research in several disciplines.
  4. Primary data are the only source to understand one’s opinions, personal qualities,

attitudes, etc.

###### SECONDARY SOURCES OF DATA

* The secondary data are those which have already been collected by someone else and which have already been passed through the statistical process. Secondary data refer to the information that have been collected by someone other than researcher for purposes other than those involved in the research project at hand. Books, journals, manuscripts, diaries, letters, etc., all become secondary sources of data as they are written or compiled for a separate purpose.
* As a matter of fact, the difference between primary and secondary sources is a matter of relativity. Data which are primary in the hands of one, becomes secondary in the hands of the other.

Advantages of secondary data.

1. It saves time, energy and money
2. It provide information that may not be secured by the individual researcher.

Methods/techniques of data collection

* This is a very important aspect of research design and the ability to achieve the research aims and answer the research question depends on the effectiveness of data collection.

###### Method of collecting data

1. Observation method
2. Interview method
3. Survey method
4. Experimentation
5. Panel method
6. Projective technique
7. Sociometry
8. Content analysis

###### METHODS OF PRIMARY DATA COLLECTION.

**Interview method**

* It may be defined as a two way systematic conversation between an investigator and an informant, initiated for obtaining information relevant to a specific study.
* It involves not only conversation, but also leaning from the respondents, gestures, facial expression, pauses and his environment.

###### Characteristics

* The participants – the interviewer and the respondent – are strangers
* The relation between the participants is a transitory one.
* Interview is a conversation with a specific purpose
* Interview is a mode of obtaining verbal answers to questions
* Interaction between the interviewer and the respondent need not be necessarily face-to-face basis
* Conversation need not be limited to a single respondent, it can also be conducted with a group of persons, depending on the study
* Interview is an interactional process
* Information furnished by the respondent in the interview is recorded by the investigator
* Interviewing is a flexible psychological process

Requirements

The successful interview requires:

* Data availability
* Role perception
* Respondents motivation
* Clear objectives
* Pre-test
* Relevant practice
* Plain and unambiguous language
* Reasonable length
* Written field work procedure
* Privacy, consent, confidentiality etc

###### Interviewing process

* Preparation
* Introduction
* Developing rapport
* Carrying the interview forward
* Recording the interview
* Closing the interview

##### Types of interviews

###### Structured or 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. This type of interview is used for large-scale formalized surveys

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

In this type of interview, a detailed pre-planned schedule is used. Only a broad interview guide is used. Questions are not standardized and not ordered in a particular way. This technique is more useful in case studies rather than large surveys.

###### Semi-structured or focused interview

* + The investigator attempt to focus the discussion on the actual effects of a given experience to which the respondents have been exposed.
  + The situation is analyzed prior to the interview. An interview guide specifying topics relating to the research hypothesis is used.
  + Interview is focused on the subjective experiences of the respondent.

###### Clinical interview

* + It is concerned with broad underling feelings or motivations or with the course of the

individual’s life experiences.

* + The ‘personal history’ interview used in social case work, prison administration, psychiatric

clinics and in individuals life history research is the most common type of clinical interview

###### 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 deliberately aims to elicit unconscious as well as extremely personal feelings and emotions

###### Telephone interviews

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

###### Group interview

* + It is a method of collecting primary data in which a number of individuals with a common interest interact with each other

###### Interview problems

* + Inadequate response
  + Interviewer’s bias
  + Non-response
  + Non-availability
  + Refusal
  + Incapability or inability
  + Inaccessibility

###### OBSERVATION METHOD

Observation is one of the cheaper and more effective techniques of data collection. Observation, in simple terms, is defined as watching the things with some purpose in view. However, in research activity the term has a wider meaning than simple watching.

Observation, is a systematic and deliberate study through eye of spontaneous occurrence at the time, they occur.

Observation may serve a variety of research purposes, it may be used to explore the given area of subject matter or to gain insight in to the research problem and provide a basis for development of hypotheses.

Observation may also be used as the primary technique of data collection in descriptive studies and also in the experimental studies designed for testing casual hypotheses. Observation many times is a perception.

Observation has mainly three components-Sensation, attention and perception. The accuracy of observation depends on knowledge and experience. Generally, the intellectual, physical and moral conditions are very important in observation.

General characteristics of observation method

1. It is a physical and mental activity.
2. It is selective and purposeful.
3. It is a scientific tool of research.
4. It is a direct study of the situation or phenomenon.
5. It tries to establish cause and effect relationship in the observed phenomenon.

###### PROCESS OF OBSERVATION

There are five sequential steps in the observation method.

1. Preparation and training.
2. Entry in to the study environment.
3. Initial interaction.
4. Observation and training.
5. Termination of field work.

##### Aids in observation process

In order to make the process of observation effective and reduce the faults of the observer, a researcher may use a range of tools for systematising and recording data. Diaries, field notes, maps, check lists, cameras, audio, video tape recorders, maps ,analogy, checklist, sociometric scales, mechanical devices are the major tools adopted by the researcher to make the observation process as accurate as possible.

##### Types of Observation

Observation, which is the most classical method of scientific enquiry, may take many forms. With reference to investigators role, it may be classified into

1. **Participant observation**: In this observation, the observer is a part of the phenomenon or group which is observed and he acts as both an observer and a participant. The persons who are observed group should not be aware of the researcher’s purpose. Then only their behaviour will be natural. The observer can understand the emotional reactions of the observe group, and get a deeper insight of their experiences.
2. **Non-Participant observation:**In this type of observation, the researcher does not actually participate in the activities of the group to be studied.There is no emotional involvement on the part of the observer.Observer would be simply present in the group to note down the behaviour of the respondents.
3. **Controlled observation**:This type of observation is found quite useful in either in the laboratory orin the field.This involves standardization of the fields like psychology and sociology.Controlled observation is carried out observational techniques and exercise of maximum control over extrinsic and intrinsic variables
4. **Uncontrolled observation**: If the observation takes place in the natural settings, it may be termed as uncontrolled observation. The main aim of this observation is get spontaneous picture of life. This does not involve control over any extrinsic or intrinsic variables.
5. **Direct observation**: In this type of observation, the event or the behaviour of the person is observed as it occurs. This method is flexible and allows the observer to see and record subtle aspects of events and behaviour as they occur.
6. **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. In other words, the behaviour of the person is not observed, rather its effects are observed.

**Advantages of observation method.**

1. It is the most direct means of studying a wide variety of phenomena based on actual and first-hand experience.
2. It enables the observer to code and record behavior at the time of its occurrence.
3. The behavior of human beings can be best studied.
4. It is the basis for formulating hypothesis.
5. Data collected under this method is more accurate and reliable, as it is based on the first hand perception of the eyes.

###### LOCAL CORRESPONDENCE:

In this method data are not formally collected by enumerations. But they are collected by local correspondence. Such data are not very reliable. Therfore this method can be applied only where a high degree of precision is not necessary.

###### PROJECTIVE TECHNIQUES

* + It involve presentation of ambiguous stimuli to the respondents for interpretation. In doing so, the respondents reveal their inner characteristics.
  + This techniques for the collection of data have been developed by psychologists to use projections of respondents for inferring about underlying motives, urges, or intentions which are such that the respondent either resists to reveal them or is unable to figure out himself.
  + These techniques play an important role in motivational researches or in attitude surveys.

##### Types of projective techniques

Projective techniques may be divided into three broad categories:

* 1. **Visual:** to show the respondent a picture and ask him to describe the persons or objects in the picture.
  2. **Verbal:** this techniques involve use of words both for stimulus and for response.
  3. **Expressive:** under this technique subjects are asked to improve or act out a situation in which they have been assigned various roles.

##### Visual projective techniques

* + **Rorschach test:** this test was first developed by a Swiss Scientist Herman Rorschach. It consists of ten cards having prints of inkblots. The design happens to be symmetrical and meaningless. The Respondents are asked to describe what they perceive in such symmetrical inkblots and the responses are interpreted on the basis of some pre-determined psychological framework.
  + **Rosenzweig Test (Cartoon test):** this test was first developed by Rosenzweig. This test uses cartoon format or a series of cartons.

In each cartoon has portrayed two characters; one is represented as saying something which is stated in a speech balloon over the character; the other character is provided with an empty speech balloon. The respondent is asked to write in the empty balloon what the second character would probably say. The answer of respondents can be classified according to the attitude, frame of reference and role perceptions that they reflect. The successful administration and interpretation of Rorschach test requires trained investigators and psychologists.

* + **Thematic Apperception Test (TAT):** This test was first developed by Murray and his associates at the Howard Psychological Clinic. The TAT Presents highly structured stimuli and requires more complex and meaningfully organised verbal response. This test consists of a set of Pictures that are shown to the respondent who are asked to describe what they think the pictures represent. The respondents response constitute the basis for the investigator to draw inferences about their personality structure, attitude, etc. The interpretations made on the basis of qualitative scoring schemes and rating scales.
  + **Picture Frustration Test :** this test consists 24 sets of cartoon pictures in pair, In each pair there is a picture indicating a frustrating situation accompanied by verbal remarks. A blank space is provided for respondents to write his ideas/ views about the picture.
  + **Holtzman Inkblot Test (HIT):** this test is a modification of the Rorschach test. It is developed by W.H.Holtzman. This test consists of 45 inkblot cards which are based on colour, movement, shading and other factors involved in inkblot perception. Only one response per card is obtained from the respondent and the response is interrelated at three levels of form of appropriateness.

###### Verbal projective techniques

* + Word Association Test: the method is to ask respondents to associate brands with one word which they associate with the brand
  + Sentence Completion Tests: this is an extension of word association test. In this type an incomplete sentence is given to the respondent, And he is asked to complete it. The completion of sentences requires the respondent to take a position to express his attitudes. For interpretation of this test requires a trained hand.
  + Story Completion Test: this test is similar to sentence completion test. In this test the respondents are given a part of a story and are asked to complete it. The investigator can assess the attitude and characteristics of the respondent on the basis of story completion.

###### Expressive techniques

* + Play technique: this test is mainly used to study children’s attitude through manipulation of dolls. Dolls representing different racial groups are usually given to children who are allowed to play with them freely. The manner in which the children organise dolls would indicate children’s attitude towards the subject under study.Play technique is a well-thought out and research supported approach for helping out people cope with and overcome the problems they experience in the process of living their lives.
  + Finger painting: it is a one of the major types of test under expressive technique. A set of pots of a special type of paint is given to the respondent who is told to draw what he likes with the paints using his fingers and hands. Variables can be measured by counting numbers of certain kinds of manipulative and approach behaviour.
  + Role playing: This technique is used in behavioural research. It is the acting out of assigned specific roles for a brief period by two or more individuals. An observation system may be used to measure the variables under study. Group processes, interpersonal interaction, authoritarianism, prejudice and other variables can be studied through this technique.

###### INTERVIEW SCHEDULE

Schedule is the Performa containing a set of questions being filled in by the enumerate who are specially appointed for this purpose. In other words, it is nothing more than a list of questions which are necessary to test a particular hypothesis. In schedule, usually a set of questions are asked and filled by an interviewer in a face- to-face situation with another. Accoreding to Goode and hatt, schedule is the name usually applied to a set of questions which are asked and filled by an interviewer, in face to face situation with another.

##### Types of schedules

Depending on the situations in which schedules are used, we may identify the following types of the schedules:

**Observation schedule:** This is a method used to supplement the collection of data along with observation technique. While the researcher collects the data through observation.

**Document schedule:** These are the schedules which are used to record the information contained in various documents such as files, books, etc.

**Evaluation schedule:** These schedules are generally used by organisations or institutes to measure their performance relating to a particular activity.

##### Process of data collection through schedules:

Data collection under this method proceeds in a systematic manner. The investigators or enumerators proceed to the field with the schedules and administer them on the sample, selected by them. They go on asking the questions incorporated in the schedule and note down the responses of the respondents.The quality of the data depends on the people who go to the field and collect the data. Investigators or enumerator should be trined sufficiently. They should be intelligent and must possess the capacity of cross examination in order to find out the facts. Above all they should be honest, sincere, hardworking and should have patience and perseverance since the quality of data affects the validity of the conclusion, every care should be taken to collect as accurately as possible.

The procedure of constructing a schedule, the analysis and interpretation of data gathered through it are not very different from those of a questionnaire.

###### 1. Questionnaire

Questionnaire is the most common instrument of data collection. A questionnaire consists of number of questions printed or typed in a definite order on a form or set of forms. In a questionnaire respondents read the questions , interpret what is expected then write down the answers.

###### Mailed Questionnaire

A questionnaire consists of a schedule of a questions sent by mail to the persons on a list or in a sample survey. Questionnaire can be further classified as follows:

* Structured questionnaire
* Non-structured questionnaire
* Disguised questionnaire
* Non-disguised questionnaire
* Structured disguised questionnaire
* Structured non-disguised questionnaire

The following are some of the important merits of the use of questionnaire method:

1. Low cost: The primary advantage of questionnaire method is that it is less expensive to administer. This is because questionnaires are must often mailed or handed over to a large numbers of interviewees simultaneously.
2. Avoid bias: The questionnaire method does not give scope to the investigator to manipulate the data or respondent. It is free from the bias of the interviewer and the answers are in own language of the respondents.
3. Anonymity: It offers greater anonymity. Since the investigator is interested in the answers to the questions, rather than the persons, the respondents may feel free to express their opinion without ambiguity or fear.
4. Less pressure: This method gives less pressure on the respondents for immediate responses. Sometimes. This may be necessary, if the respondent is required to report information which he needs to check up.
5. Wide Coverage: The questionnaire is the best method to reach far off places with very low cost.
6. Dependable and reliable result: Large samples can be made use of and thus the results can be made more dependable and reliable.

###### FORMULATION OF A QUESTIONNAIRE

The success of a questionnaire depends upon the skills and insights with which the lists of questions are formulated along with the type of questions used. The following considerations in mind while formulating questionnaire.

###### APPEAL

The appeal should be short, clear and direct establishing the genuineness of the research and its utility for all concerned.

###### INSTRUCTION FOR FILLING UP THE QUESTIONNAIRE

The questionnaire must carry a list of instructions for filling it up and dispatching it.

###### FORM OF THE QUESTIONNAIRE

The outlook and appearance of the questionnaire should be attractive. It must be printed in an appealing style on high quality paper.

###### CLARITY OF QUESTIONS

The best method is to ensure that our questionnaire does not have any misleading or confusing questionnaire. It should first be tried on a selected group of individuals and suitable modifications should be made in questions in the light of the experience with the selected group.

###### SEQUENCE OF QUESTIONS

The order of framing questions is also important. The sequence must be logical and arouse interest in the questions. The disorderly sequence of the questions disturbs the mind of the respondent and he may fail to answer the questions, adequately.

###### GENERAL FORM

So far as the general form of a questionnaire is concerned, it can either be structured or unstructured questionnaire. Structured questionnaire are those questionnaires in which there are definite, concrete and pre-determined questions. The questionnaire which do not have definite, concrete and pre0determind questions are termed as unstructured questionnaire. In this type, the researcher/ interviewer is provided with a general guide on the type of information to be obtained.

###### QUESTION FORMULATION AND WORDING

In general, all questions should meet the following standards –

1. should be easily understood;
2. should be simple that is, should convey only one thought at a time;
3. should be concrete and should conform as much as possible to the respondents way of thinking.

**CONSTRUCTION OF QUESTIONNAIRE**

The process of drafting a questionnaire should have the following aspects:

1. **Information required:** The first step in the formulation of a questionnaire is to decide in advance what type of information is needed for the study.
2. **Type of questionnaire to be used:** Questionnaires may be categorized according to structure and directness. Structure refers to the degree to which the questions and responses are formal and standardized.
3. **First draft:** Before finalizing the questionnaire the researcher should prepare a preliminary draft of the questionnaire based on the aim and objectives of the study. The researcher can check .revise and prepare the final draft of the questionnaire based on pre-testing result of the questionnaire. Revising questions: the researcher should revise the questionnaire before the final edition. This will help the researcher to understand unforeseen problems related to wording, format, sequence etc
4. **Editing of questionnaire:** Researcher must pay proper care and attention to the editing of the questionnaire. Simple words, which are familiar to all respondents should be employed. Words with ambiguous meanings, danger words, words with emotional connotations should be avoided.
5. **Explaining the procedure for its use:** the researcher should give or specify the procedure or instructions for its use. If the instrument is meant for mail survey, instructions regarding the mode of answering should be specified at the top of the first page. The anonymity should be assured.
6. **Pre-testing of questionnaire:** Pretest is a try out of the questionnaire to see how it works and whether changes are necessary before the start of full scale study. It provides a means of catching and solving unforeseen problems in the administration of the questionnaire, such as the wording, sequence of questions or even length. It may also indicate the need for additional questions or the elimination of others. Pretests are best done by personal interview even if the survey is to be handled by mail or telephone.
7. **Final draft of the questionnaire:** After pretesting the questionnaire if any mistakes are found, they must be corrected and the draft revised. In fact, there is no final word about the construction of a questionnaire. Improvements can always be thought of and the lacunae existing in the questionnaire would be coming to light as the work is progressing.

**Various methods/ techniques for getting the response**

There are several methods to get the responses through a questionnaire. They can be listed as:

* 1. Self addressed envelope
  2. Incentives/schemes/prizes
  3. Reminders
  4. Using mediator
  5. Sufficient interval
  6. Retention
  7. Good and interest creating questions

**CHARACTERISTICS OF GOOD QUESTIONS**

Good questions should

* + 1. be simple and clear
    2. Be suitable to respondent’s intelligence level
    3. Be relevant
    4. Be indirect
    5. Have serial order
    6. Have classifiability
    7. Have verifiable questions
    8. Have ambiguous questions
    9. Be answerable in few words

**TYPES OF QUESTIONS**

The different types of questions are framed by the social scientist in order to elicit different types of information on various aspects of a problem. Open ended questions, multiple choice questions and dichotomous questions are the three most common types of questions generally used in the research instruments.

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