MBA.1.2.10.C Business Research

MODULE-II

METHODS OF DATA COLLECTION

Types of Data:
- **Primary Data**: Primary data is one which is collected by the investigator himself for the purpose of specific inquiry or study. Such data is original in character and is generated by surveys conducted by individuals or research institutions.
- **Secondary Data**: When an investigator uses the data which has already been collected by others, such data is primary data for the agency that collects it and becomes secondary data for someone else who uses this data for his own purposes. The secondary data can be obtained from:
  - Various publications of the central, state or local governments.
  - Various publications of foreign governments or of international bodies and their subsidiary organizations.
  - Technical or trade journals.
  - Books, magazines, newspapers.
  - Reports and publications of various associations connected with business or industry.
  - Reports prepared by research scholars.
  - Public records of statistics historical documents.

Modes of Data Collection:
There are basically three widely used methods for collection of primary data.
- **Observation Method**: The observation method is the most commonly used method specifically in studies relating to behavioral sciences. Observation becomes a scientific tool and method of data collection for the researcher when it serves a formulated research purpose, is systematically planned and recorded and if subjected to checks and controls on validity and reliability. Under the observation method, the information is sought by way of investigators own direct observation without asking from the respondent.
  - **Advantages**:
    - Subjective bias is eliminated, if observation is done accurately.
    - The information obtained under this method reduces to what is currently happening: it is not complicated by either the past behaviour or future intentions attitude.
- **Disadvantages**:
  - This method is independent of respondents willingness to respond and as such is relatively less demanding of active cooperation on the part of respondents as happens to be case in interview or questionnaire method.

Various Steps / Observations:
- **Structured Observation**: Observation techniques where the researcher clearly defines the behaviors to be observed and the methods by which they will be measured.
- **Unstructured Observation**: Observation that involves a researcher monitoring all aspects of phenomenon without specifying the details in advance.
- **Natural Observation**: Observing behavior as it takes place in the environment.
- **Controlled Observations**: The behavior is observed in an artificial environment.
- **Participant Observations**: If the observer observes by making himself more or less, a member of group he is observing so that he can experience what the members of the group experience.
- **Non Participant Observation**: When the observer observes as a detached emissary without any attempt on his part to experience through participation what others feel.
- **Controlled Observation**: When observation takes place according to definite pre arranged plans, involving experimental procedure.
- **Uncontrolled Observation**: If the observation takes place in natural settings.
- **Personal Observation**: An observational research strategy in which human observers record the phenomenon being observed as it occurs.
- **Mechanical Observation**: An observational research strategy in which mechanical devices rather than human observers, record the phenomenon being observed.
- **Pantry Audit**: A type of audit where the researcher inventories the brand, quantities, and package sizes of products in a consumer home.
- **Content Analysis**: The objective, systematic and quantitative description of the manifest content of a communication.
- **Trace Analysis**: An approach in which data collection is based on physical traces, or evidence of past behavior.

Classification of Observation Method:
- Personal Observation
- Mechanical Observation
- Audit
- Content Analysis
- Trace Analysis

**Questionnaire Method:** In this method a questionnaire is sent to the persons concerned with request to answer the questions and return the questionnaire. It is also adopted private individuals, research workers, private and public organizations and also government. A questionnaire consists of a number of questions printed or typed in definite order on a form or a set of forms. This method is quite popular. Before using this method, it is always advisable conduct pilot study / pilot survey for testing questionnaire.

**Types of Questionnaire:**
- **Unstructured Questionnaire:** Unstructured questionnaire are open ended questions that respondents answer in their own words. They are also referred to as free response or free answer questions.
- **Structured Questionnaire:** Structured questionnaire specify the set of response alternatives and the response format. A structured question may be or could be multiple choice, dichotomous or a scale. In multiple choice question the researcher provides a choice of answers and respondents are asked to choose one or more of the alternatives. Dichotomous question is a structured question with only two response alternatives yes or no.

**Merits:**
- This is a low cost method even when the universe is large and is widely spread geographically.
- It is free from the bias of the interviewer: answers are in respondents own words.
- Respondents have adequate time to give well thought out answers.
- Respondents, who are not easily approachable, can also be reached conveniently.
- Results can be made more dependable and reliable.

**Demerits:**
- Low rate of return of duly field in questionnaires; bias due to no response is often indeterminate.
- It can be used only when respondents are educated and cooperating.
- The control over questionnaire is lost once it is sent.
- There is inbuilt inflexibility.
- There is also the possibility of ambiguous replies.
- Interpretation of omissions is difficult.

- It is difficult to know whether willing respondents are truly representative.
- This method is likely the slowest of all

**Steps for Construction:**
1. Decide what information is wanted.
2. Decide what type of questionnaire to use: personal, mail, telephone etc.
3. Decide on the content individual question.
4. Decide on the type of question to use: open, multiple choices.
5. Decide the wording of questions.
6. Deciding on question sequence.
7. Decide on layout and method of reproduction of questionnaire
8. Make a preliminary draft and pretest it.
9. Revise and prepare the final questionnaire.

**Questionnaire Design Process:**
1. Specify the information needed
2. Specify the type of interview method
3. determine the content of individual questions
4. Design the questions to overcome the respondent’s inability and unwillingness to answer.
5. Decide on the question structure
6. Determine the question wording
7. Arrange the questions in proper order
8. Identify the form and layout.
9. Reproduce the questionnaire.
10. Eliminate bugs by pre testing.

**Points to Check Possible Question:**
- Is the question necessary?
- Are several questions needed instead of one?
- Does the respondent have the information requested?
- Is the point within the respondents experience?
- Can the respondent remember the information required?
- Will the respondent have to do a lot of work to get the information?
- Will the respondents give the information?

**Survey Method:**
Survey method is a structured questionnaire given to respondents and designed to elicit specific information. Thus, this method of obtaining information is based on questioning of respondents. Respondents are asked a variety of questions regarding their behavior, intentions, attitudes, awareness, motivations and demographic and life style characteristics. These questions may be asked verbally, in writing or via computer and responses may be obtained in any of these forms.
Data Collection Process:
1. **Structured Data Collection**: Use of formal questionnaire that present questions in a prearranged order.
2. **Fixed Alternative Questions**: Questions that require respondents to choose from a set of predetermined answers.

   **Advantages**:
   - The questionnaire is simple to administer.
   - The obtained are reliable.

   **Disadvantages**:
   - Respondents may be unable or unwilling to provide the desired information.

Classification of Survey Methods:
- **Survey Method**
  - **Telephonic Interviewing**
    - **Traditional**: Traditional telephone interviews involve phoning a sample of respondents and asking them a series of questions.
    - **Computer Assisted**: Computer assisted telephone interviewing uses a computerized questionnaire administered to respondents over the telephone. A computerized questionnaire may be generated using a computer. The interviewer sits in front of a computer terminal and wears a mini handset.
  - **Personal Interviewing**
    - **In-Home**: In home interviews, respondents are interviewed face to face in their homes. The interviewer task is to contact their respondents, ask the questions, and record the responses.
    - **Mall Intercept**: In mall intercept personal interviews, respondents are intercepted while they are shopping in malls and brought to test facilities in the malls. The interviewer then administers a questionnaire as in the in home personnel survey. The advantage of mail intercept interviews is that it is more efficient for respondent to come to interviewer than for the interviewer to go to the respondent.

- **Mail Interviewing**
  - **Mail**: In traditional mail interview, questionnaire is mailed to pre selected potential respondents. A typical mail interview package consists of the outgoing envelope, cover letter, questionnaire, return envelope and possible incentive.

ATTITUDE MEASUREMENT & SCALES
Introduction:
Attitude is the mental state of an individual which makes him to act or respond for or against objects, situations, etc., with his/her vested feelings of interests desire and so on, are directly or indirectly linked or associated.

During the course of development, the person acquires tendencies to respond to objects. These learned cognitive mechanisms are called attitude. Changes in knowledge are followed by change in attitudes. Attitudes are different from knowledge in the sense that attitudes are emotion laden. Knowledge reinforces attitudes and reinforced attitudes in the long run reinforce individual or group behaviour. Hence, attitude is neither behaviour nor cause of behaviour but it relates to an intervening pre disposition or a frame of reference which influences the behaviour of an individual.

**Attitude Survey**:
Attitude surveys focus on feelings and motives of employees opinions about their workings environments. There are three basic purposes for conducting attitude survey.
- To compare results with other survey results.
- To measure the effect of change that occurs
- To determine the nature and extent of employee feelings regarding specific organizational issues and organization in general.

**Myth Statement**:
1. Hard work ensures better result.
2. Link work with subordinates for prompt results.
3. Never say no to anyone; Listen to everybody’s problems.
4. One, who is indispensable, is efficient.
5. Maintain the hierarchical structure while taking decision very rigidly.

**Types of Scale**:
- **Nominal Scale**: Nominal scale is the least powerful level of measurement. This is applied to qualitative data where the objects or items are classified into various discrete and distinctive groups or categories without any ranking or order with them. It does not possess any of the three attributes: magnitude, equal intervals and absolute zero points.

  For Example:
  - Categorizing people according to their religion such as Hindu, Muslim, Sikh and Christian.
  - According to their political affiliation such as democrat, republican, a socialist etc.
Other categories such as smoking vs. non-smoking, ownership of land vs. no ownership of land and so on.

The assignment of number of basket ball players in order to identify them. Such numbers can’t be considered to be associated with an order scale.

Nominal scales are still very useful and are widely used in surveys and other ex-post-facto research when data are being classified by major sub groups of the population. In nominal scale, a set is split into subsets which are normally exclusive and collectively exhaustive.

- **Ordinal Scale / Ranking Scale**: this possesses the attribute of magnitude only. This means that various categories of items can be compared with each other only in order of rank assigned to categories. However these ranks only indicate as to which category is greater or better, but do not indicate the magnitude of difference among them.

  For Example:
  - Students may be categorized according to their grades of A,B,C,D,E,F etc where A is better than B and so on. This classification is from the highest grade to the lowest grade.
  - Teachers are ranked as Professor, Associate professor, Assistant professor and Lecturer etc.
  - Professionals in good organizations classified as GM, DGM, AGM, Sr. MGR, MGR, etc.
  - Ranking of two or more households according to their annual income or expenditure.
  - One can ask respondents questions on the basis of one or more attributes taste, colour and ask about liking or disliking.
    - I strongly like it +2
    - I like it +1
    - I am indifferent 0
    - I dislike it -1
    - I strongly dislike it -2

  In this manner, ranking can be obtained by asking the respondent their level of acceptability.

  Ordinal scales only permit the ranking of items from highest to lowest.

  Ordinal measures have no absolute values, and the real difference between adjacent ranks may not be equal.

- **Interval Scale**: Interval scales is stronger than the ordinal scale because it possesses not only magnitude attribute but also the equal intervals attribute as it measures the values of quantitative random variables and identifies not only as to which category is greater or better.

  For Example:
  - Measures of height, weight and time are all example of interval scale.
  - If the temperature are 100º C, 80º C, 120 ºC, then we see that temp I is 20 ºC more than temp II but cooler by 20 º C as compared to temp III.

  Internal scales are more powerful and also preferred than nominal and ordinal scales as they are quicker to complete and most researchers find them convenient to use.

- **Ratio Scale**: The ratio scale is also used for measurement of quantitative random variables but it differ from intervals scale in that it has a true (absolute) zero point, meaning that the values of such variables can be zero also.

  Example:
  - Physical measurement of height, weight, distance etc.
  - Equal ratio on the ratio scale indicates the equal ratio among the element being measured.

**SAMPLING METHODS:**

**Population**: The aggregate of all the elements sharing some common set of characteristics that comprises the universe for the purpose of research problem.

**Census**: A complete enumeration of the elements of a population or study object.

**Sample** A sub group of the elements of the population selected for the participation in the study

**Element** Objects that possesses the information sought by the researcher and about which inferences are to be made

**Sampling Unit** The basic unit contain the elements of the population are to be sampled

**Sample Size** Number of elements to be included in the study

**Sampling Techniques:**

**Different types of sample design** There are different types of sample designs based on two factors viz. the **representation basis** and the **element selection basis** technique. On the representation basis, the sample may be **probability sampling** or it may be **non-probability sampling**. Probability sampling is based on the concept of random selection, whereas non-probability sampling is non-random sampling. On element selection basis the sample may be either **unrestricted** or **restricted**. When each sample element is drawn individually from the population at large, then the sample so drawn is known as unrestricted sample whereas all other forms of sampling are covered under the term restricted sampling of the whole.
Non Probability Sampling: This sampling techniques do not use chance selection procedure rather they rely on the personal judgment of the researcher. Non probability sampling are divided into following types

- **Convenience Sampling:** It is a technique that attends to obtain a sample of convenient elements. The selection of sampling units is left primarily to the interviewer. Example: People on street interviews, use of students, church group and member of social organization.

- **Judgmental Sampling:** In this population elements are selected based on judgment of the researcher. Example: Test market selected to determine is the potential of a new product, experts witness used in court.

- **Quota Sampling:** It is a technique that is two stage restricted judgmental sampling. The first stage consists of developing control categories or quota for population elements. In second stage sample elements are selected based on convenience or judgment. Example: Effective in determining magazine readership.

- **Snowball Sampling:** It is a technique in which an initial group of respondents is selected randomly. Subsequent respondents are selected based on the referrals or information provided by the initial respondents. This process may be carried out in waves by obtaining referrals from referrals.

Probability Sampling:
A sampling procedure in which each element of the population has a fixed probabilistic chance of being selected for a sample.

- **Simple Random Sampling:** In this technique each element in the population has a known and equal probability of selection. Every element is selected independently of every other element. The sample is drawn by a random procedure from the sampling frame.

- **Systematic Sampling:** It is a technique where the sample is chosen by selecting a random starting point and then picking every \( i \)th element in succession from the sampling frame. For example, there are 1 Lakh element in the population, sample 1000 is desired, in his case the sample interval \( i \) is 100, a random number between 1 and 100 is selected i.e. let’s say 23, then the sample consists of 23, 123, 223, 323 and so on.

- **Stratified Sampling:** it is a sampling technique that uses two step process to partition the population into sub population or strata. Elements are selected from each stratum by a random procedure.

- **Cluster Sampling:** In this the target population is divided into mutually exclusive and collectively exhaustive sub population called clusters. Then a random sample of clusters is selected based on probability sampling techniques such as simple random sampling. For each selected cluster either all the elements are included in the sample or a sample of elements is drawn probabilistically.

- **Area Sampling:** This is a common form of cluster sampling where cluster consists of geographic area such as countries, houss tracks, blocks or other area descriptions.

- **Sequential Sampling:** It is a technique where the population elements are sampled sequentially, data collection and analysis are done at each stage and decision is made as to whether additional population elements are to be sampled.

- **Double Sampling:** This is a sampling method where sample population is sampled twice.

**Sample Design**
A sample design is a definite plan for obtaining a sample from a given population. It refers to the technique or the procedure the researcher would adopt in selecting items for the sample.

**Steps in Sample Design:**

---**Type of universe:** The first step in developing any sample design is to clearly define the set of objects, technically called the Universe, to be studied. The universe can be finite or infinite. In finite universe the number of items is certain but in case of infinite universe it is infinite.

---**Sampling Unit:** Sampling unit may be geographical one as state, district, village etc or construct unit such as house, flat etc.

---**Source List:** It is also known as sampling frame from which sample is to be drawn. It contains the names of all items of a universe.

---**Size of Sample:** This refers to the number of items to be selected from the universe to constitute a sample. It should be optimum. Thus an optimum sample is one which fulfills the requirements of efficiency, representativeness, reliability and flexibility.

---**Parameters of interest:** In determining the sample design, one must consider the question of the specific population parameters which are of interest.

---**Budgetary constraints:** Cost considerations from practical point of view, have a major impact upon decisions relating to not only the size of the sample but also to the type of sample.
---Sampling procedure- The researcher must decide the type of sample he will use, he must decide about the technique to be used in selecting the items for the sample.

Criteria of selecting a sampling procedure

Systematic bias- It is the result from errors in the sampling procedures and it cannot be reduced or eliminated by increasing the sample size. Usually a systematic bias is the result of one or more of the following factors:

---Inappropriate sampling frame- If the sampling frame is inappropriate, a biased representation of the universe, it will result in a systematic bias.

---Defective measuring device- If the measuring device is constantly in error it will result in systematic bias.

---Non respondents- If we unable to sample all the individuals initially included in the sample, there may arise a systematic bias.

---Indeterminancy principle- Some times we find that individuals act differently when kept under observation than what they do when kept in non observed situations.

Characteristics of a Good Sample Design

---Sample design must result in a truly representative sample.

---It must be such which results in a small sampling error.

---It must be viable in the context of funds available for the research study.

---It must be so that systematic bias can be controlled in a better way.

---It should be such that the results of the sample study can be applied, in general for the universe with a reasonable level of confidence.

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