

Research

Methods of Data **Collection**





Data

The word *data* is the plural of *datum*, neuter past participle of the Latin *dare*, "to give", hence "something given".

- Data are values of qualitative or quantitative variables, belonging to a set of items.
- Data in computing (or data processing) are often represented by a combination of items organized in rows and multiple variables organized in columns.
- Data are typically the results of measurements and can be visualized using graphs or images.

Primary Sources



- **Contemporary Accounts** of an event written by the person who witnessed or experienced it.
FIRST HAND!
- **Original Documents, Unpublished** – not about another document or account

Include:

- Diaries
- Letters
- Memories
- Speeches
- Manuscripts
- Interviews
- Photographs
- Audio or video recordings
- Original literary or theatrical works

Secondary Sources



- **Interpret primary sources**
- **Examination** of studies that other researchers have made of a subject.
- **Second Hand** - conveys the experiences and opinions of others.

- Usually in the form of published works
 - Journal articles
 - Books
 - Radio and TV documentaries

Data Collection

- Begins after a research problem has been defined and research design/ plan chalked out.
- Two types of data:
 - Primary
 - Secondary

Primary data are those which are collected as fresh and for the first time, & thus happens to be original in character.

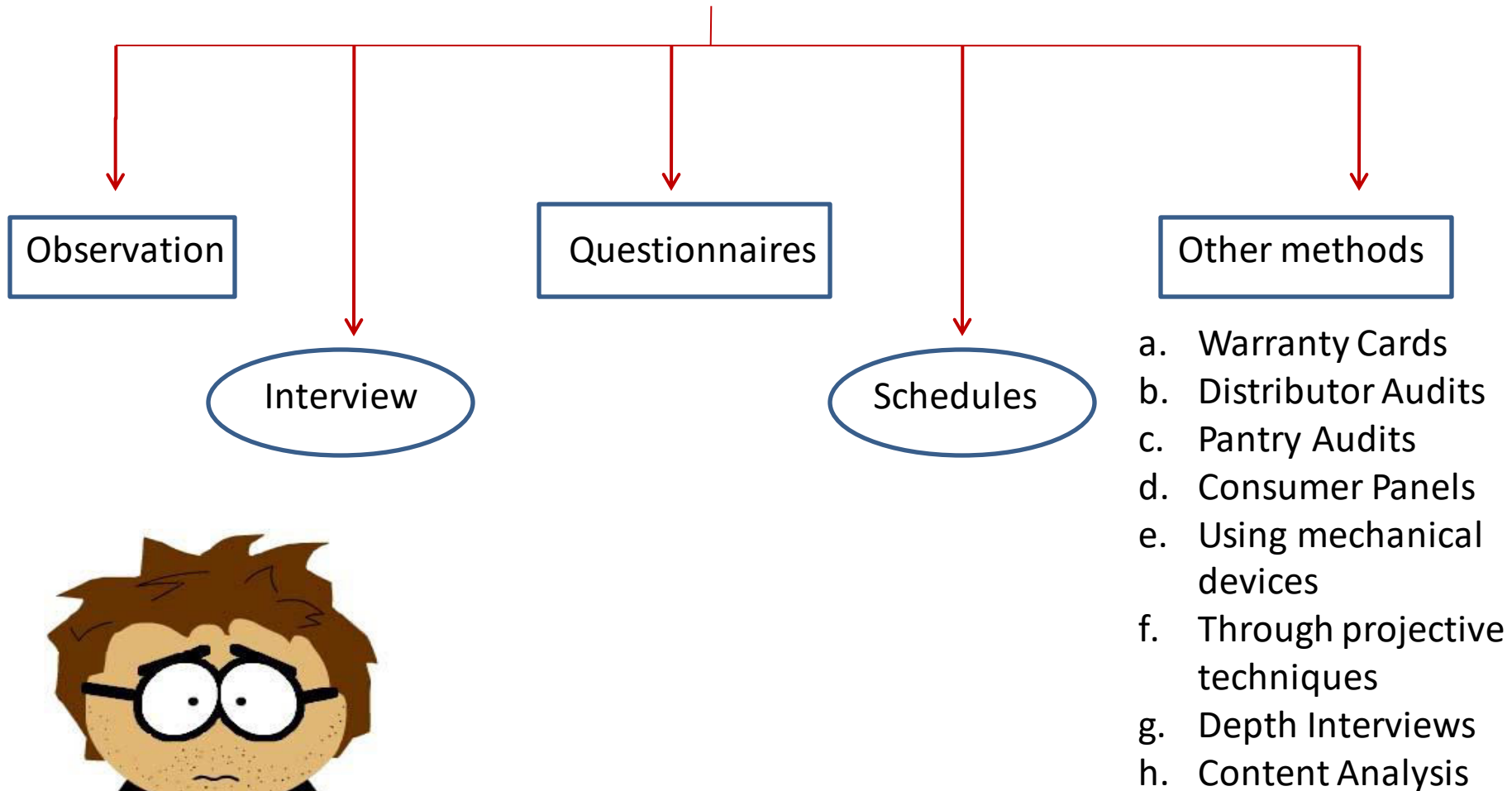
Secondary data are those which have already been collected by someone else & which have already been passed through the statistically process.

Primary data are to be originally collected, while secondary data collection work is merely that of compilation.

Collection of Primary Data

- Collection during course of doing experiments.
- In descriptive type, perform sample survey, census survey, observation or personal interview.

PRIMARY DATA COLLECTION



1. Observation method

- Commonly used for behavioral science.
- Systematically planned, recorded and is subjected to check and control on validity and reliability.
- The information is sought by way of investigator's own direct observation.
- Only for whom who can't give verbal reports of their feeling for one or the other reason.

Keep in mind

- What should be observed?
- How the observations should be recorded?
- How the accuracy of observation can be ensured?

Observation Techniques

Types of observation:

- Structured versus Unstructured
- Participant versus Non-Participant
- Disguised versus Undisguised
- Controlled versus Uncontrolled
- Human versus Mechanical

1) Structured versus Unstructured

Structured observation: If observation is characterized by a careful definition of the units to be observed, the style of recording the observation, standardized conditions & the selection of pertinent data of observation.

Eg: Descriptive studies.

Unstructured observation: Observation without these characteristics.

Eg: Exploratory study.

2) Participant versus Non-Participant

Participant observation: Observer observes by making himself, more or less, a member of the group.

Non-Participant observation: Observer observes as a detached emissary.

Merits of participant

- I. The researcher is enabled to record the natural behavior of the group.
- II. Researcher can gather information which could not easily be obtained if he observes in a disinterested fashion.
- III. Can verify truth of statements in context of a questionnaire or a schedule.

Demerits

- I. Observer may lose the objectivity to the extent he participates emotionally.
- II. Observation-control problem not solved.
- III. May narrow down researcher's range of experience.

3) Disguised versus undisguised

Disguised observation: When observer is non participant his presence may be unknown to the people he is observing, such an observation is disguised observation.

Undisguised observation: Respondent is aware of observation.

4) Uncontrolled & Controlled observation

Uncontrolled Observation

If observation takes place in natural settings.

Merits

- No precision instrument used.
- Get spontaneous picture of life & persons.
- Supplies naturalness & completeness of behavior, allowing sufficient time for observation.

Demerits

- Main drawback is subjective interpretation.
- Danger of feeling that we know more about the observed phenomenon than we actually do.
Eg: exploratory research

Controlled Observation

Observation takes place according to definite pre-arranged plans, involving experimental procedures.

Merits

- Use precision instruments.
- Supplies formalized data upon which generalization can be built.
- Experiments in lab or under controlled conditions.

5) Human versus Mechanical

Human observation: observer is a person hired by the researcher, or, perhaps the observer is the researcher.

Mechanical observation: human observer is replaced with some form of static observing device.

Observation method

Advantages

- Subjective biases are eliminated.
- Relates to current happening ;not complicated by either the past behavior of future intentions or attitudes.
- Independent of respondent's willingness to respond and less demanding of active cooperation as in interview & questionnaire method.

Disadvantages

- Expensive.
- Information provided is limited.
- Sometimes unexpected factors may interfere with the observational task.
- Some people are rarely accessible to direct observation.

2. Interview method

Involves presentation of oral-verbal stimuli reply in terms of oral-verbal responses.

- Personal interviews
- Telephone interviews

A. Personal interviews

Requires a person known as the interviewer asking questions generally in a face to face contact to the other person or persons.

- May be direct personal investigation or it may be indirect oral investigation.

In direct personal investigation, interviewer has to collect the information personally from the sources concerned. He has to be on spot & has to meet people from whom data have to be collected.

In indirect oral investigation, interviewer has to cross-examine other persons who are supposed to have knowledge about the problem under investigation & the information, obtained is recorded.

Commissions & committees appointed by government use it.

STRUCTURED INTERVIEW

This means planning the format of the interview and the questions to be asked in advance and limiting the degree of carelessness an interviewer is allowed to take in deviating from the predetermined plan.

Standardization of all questions can give quantifiable data. Data is more reliable as the issue is being investigated in a consistent way. Allows generalization of results/conclusions to the population from which the sample was drawn.

UNSTRUCTURED INTERVIEW

Characterized by a flexibility approach to questioning. Does not follow a system of predetermined questions and standardized techniques of recording information. Interviewer has greater freedom to ask questions.

ADVANTAGES

- Flexible
- Responsive and sensitive to the participants.
- Highly detailed and valid qualitative data.

DISADVANTAGES

- Demand deep knowledge and greater skill on the part of the interviewer.
- Possible interviewer bias in 'selective' use of leading, and spontaneous questions.

FOCUSSED INTERVIEW

Is meant to focus attention on the given experience of the respondents and its effects. Interviewer has the freedom to decide the manner and sequence of question. He has freedom to explore reasons and motives.

- Interviewer may interpret the answers in his own way.
- The interpretation of the interviews by the researcher is also very difficult and gives an opportunity for personal bias to distort the findings.
- There is a high proportion of irrelevant information in the data.

CLINICAL INTERVIEW

Is concerned with broad underlying feelings or motivations or with the courses of individual's life experience. The method of eliciting information is left at interviewer's judgment.

Advantages

- Flexible.
- Responsive and sensitive to participants.
- Preparation of core questions should ensure validity.

Disadvantages

- Generalization of the findings is difficult in case of large population.
- Interviewer biasness is possible.

ADVANTAGES

- More information & in depth.
- Flexibility.
- Verbal answers recorded.
- Personal information obtained.
- Samples can be easily controlled.
- Group discussions can be made.
- Interviewer may secure spontaneous reactions.
- Language can be changed.
- Collection of supplementary information.

DISADVANTAGES

- Expensive.
- Possibility of bias.
- Some respondent may not be approachable.
- More time consuming.
- May over stimulate respondent.
- Organisation require selectin, training & supervising the field-staff.
- May introduce systematic errors.
- May facilitate free and frank responses.

B. Telephone interviews

It involves contacting a sample of respondents on phone and asking them series of questions. The interviewer uses a paper questionnaire and records the responses with a pencil.

Advantages

- More flexible, cheap & faster.
- It is a quick method for conducting a number of interviews within a short time.
- The interviewers can be supervised easily.
- The sampling can be spread over the country and traveling is eliminated.
- People who might otherwise be inaccessible, can be interviewed, since the interview can be very brief and arranged for a time that is convenient to the respondent.

Disadvantages

- Only a short questionnaire can be used.
- Observation is not possible, so that the interviewers have to rely totally on what the respondent tells them.
- The times during the day when respondents can be called are limited.
- Little time for the respondent to answer.
- Survey are restricted.

Questionnaires

A questionnaire is a formalized schedule for collecting data from respondents. The issues involved in questionnaire design directly relate to developing and administering these attitude measurement techniques. The function of questionnaire is MEASUREMENT. Questionnaire can be used to measure Past behavior, Attitudes, Respondent characteristics.

Merits

- Low cost.
- Free from bias of the interviewer: answers are in respondent's own words.
- Respondent have adequate time to give well thought out answers.
- Respondents, who are not easily approachable, can also be reached conveniently.
- Large samples can be made use of & thus the results can be made more dependable & reliable.

Demerits

- Low rate of return of dully filled in questionnaires; bias due to no response.
- Can only be used when respondents are educated and cooperating.
- Control over questionnaire is lost once it is sent.
- There is inbuilt inflexibility because of the difficulty of amending the approach once questionnaires have been dispatched.
- There is also the possibility of ambiguous replies or omission of replies altogether to certain questions: interpretation of omissions is difficult.
- It is difficult to know whether willing respondents are truly representative.
- Method is slowest of all.

Main aspect of questionnaire

I. General form.

- Same questionnaires should be provided to all.
- Yes or no type.
- Open.
- Stated in advance.

II. Question sequence.

- Misunderstanding avoided.
- Clear.
- Smooth-moving.
- Related questions used.
- Easiest put first.
- First few shows attitude of the respondent.
- Questions that put too great a strain on the memory or intellect avoided
- Personal character questions avoided.
- Personal wealth related questions avoided.

III. Question formulation and wording.

- Easily understood.
- Simple(one thought).
- Concrete and conform.
- Multiple choice.
- Open-ended.
- Simple words
- Danger words, catch-words or words with emotional connotation avoided.
- In no case should bias answer.

Essentials of a good questionnaire

- Short & simple.
- Should be from easy to difficult questions.
- Personal & intimate questions should be left to end.
- Technical terms and unclear expressions capable of different interpretations should be avoided.
- Questions may be dichotomous (yes or no answers), multiple choice or open-ended.
- Questions affecting the sentiments of respondents should be avoided.
- Adequate space for answers should be provided.
- There should always be provision for indication of uncertainty e.g. do not know, no preference & so on.
- Attractive looking.



Schedules

- Similar to questionnaire method.
- Main difference is that schedule (proforma containing a set of questions) are being filled by the enumerators who are specially appointed for the purpose.
- These enumerators along with schedules, go to respondents, put to them the questions from the proforma in the order the questions are listed & record the replies in the space meant for the same in proforma.

Collection of Secondary Data

Secondary data means data that are already available that they refer to the data which have already been collected and analyzed by someone else.

Two types :

1. PUBLISHED
2. NON PUBLISHED

Diaries, Letters, Unpublished biographies, Scholars Research works (not published) Etc.

Publications of central and state government, Publications of foreign government, international bodies and their subsidiaries organization. Books, newspapers and magazines. Etc.

Characteristics of Secondary Data

- ☐ Reliable.
- ☐ Adequate.
- ☐ Suitable.

1. Reliability of data:

Data reliability can be tested by finding out the following things about the said data

- Who collected it ?
- What were the sources of data ?
- At what time were they collected ?
- Was there any bias of compiler ?
- What level of accuracy was desired ?
- Was it achieved ?



2. Suitability of data:

Data that are suitable for one enquiry may not necessarily be found suitable in another enquiry. Hence if the available data are found to be unsuitable, they should not be used by the researcher. Therefore researcher must be careful in using secondary data.

3. Adequacy of data:

If the level of accuracy achieved in data is found inadequate for the purpose of the present enquiry, then it should not be used by the researcher. An inadequate data is one if it is related to an area which may be either narrower or wider than the area of the present enquiry.

ADVANTAGES

- It saves time in comparison with primary data.
- It is economical as compared to that of primary data source.
- Act as an aid in the formulation of the decision problem.
- Suggest methods and types of data for meeting the information needs.
- Serve as a source of comparative data by which primary data can be interpreted and evaluated.
- They may be so wide ranging that collecting them would be beyond the means of the typical organization.

Eg :- Census

DISADVANTAGES

- The extent that the data fit the information needs of the project.
- The accuracy of the data.
- The timeliness of data.

Selection of appropriate method

1. Nature, scope & object of enquiry.
2. Availability of funds.
3. Time factor.
4. Precision required.



THANK YOU