

Chapter Six: Methods of Data Collection

The task of data collection begins after a research problem has been defined and research design plan chalked out. While deciding about the method of data collection to be used for the study the researcher should keep in mind two types of data, primary and secondary. The primary data are those which are collected a fresh and for the first time and thus happen to be original character. The secondary data, on the other hand, are those which have already been collected by passed though the statistical process. The researcher would have to decide which sort of data he would be using for the study and accordingly he will have to select one or other methods of data collection. There are several methods of data collection, researches. The most important one are: (1) Questionnaires (2) Interview and schedules (3) Observations (4) Focus groups and other methods like test and existing files/data sets for the secondary data. The methods are briefly explained in the following parts.

1. Questionnaires

A questionnaire is a self- report data collection instrument/ method that are filled out by research participants. This method of data collection is quite popular, particularly incase of big enquires. In this method a questionnaire is sent to the person concerned with a request to the answer the questions and return the questionnaire. Questionnaires are usually paper are pencil instruments, but they can also be placed on the web for participants to go to are “fill out”, which contains a series of questions a providing space for the replies to be filled by the respondent him/herself.

Questionnaires are sometimes called survey instruments, which are fine, but the actual questionnaire should not be called “the survey”. The word survey refers to the process of using questionnaire or interview protocol to collect data.

In short, Questionnaire is a data collection method, which contain a series of questions, which will be filled by the respondent/ participant themselves without any direct oral explanation/interpretation from the investigator.

Types of Questionnaires

Questionnaires generally vary along two important dimensions. That is the degree of structure is the number of response possibilities.

1. Based up on the degree of Structure: from the point of view of degree of structure questionnaires may be of two types:
 - a. Structured Questionnaire: are those Questionnaires, in which there are defined, concrete and pre-determined Questions. The questions are presented with exactly in the same wording and in the same order to all respondents. In other word structured questionnaire presents questions with exactly the same wording and order to all respondents, and consist definite, concrete and predetermine items. Generally structured questionnaire is characterized by the following points:
 - Resort is taking to this sort of standardization to ensure that all respondents replay to the same set of questions.
 - The form of the question may be either closed or open, but should be stated in advance and NOT constructed during questioning.
 - It may also have fixed alternative questions in which response of the informants /participants are limited to the stated alternative.
 - Comments in the respondents own words are held to the minimum.
 - Help to maximize standardization.
 - Simple to administer are relatively in expensive to analysis.
 - b. Unstructured Questionnaires: are those, which specify only the broad areas of a subject and not the form and sequence of questions. The interviewer is provided with the general guide on the type of information to be obtained. Formulation of questions is left to the wisdom of the interviewer themselves who are free to question respondents in their own way and the replies are to be taken down in the respondent's own words to the possible extent; in the same situation tape recorders may be used to achieve this goal. Unstructured questionnaire suffer from two important limitations: one the replies gathered though unstructured questionnaires can not be compared with each other and this makes it difficult to judge the reliability of information. Two unstructured questionnaires can be used by only trained interviewers who can frame questions at the time of interview itself based on the response of the participants.

2. Based on the number of response Possibilities: Questionnaires also vary in respect of the number of response possibilities provided to the subject/respondents.
- If the question provides the subject with only two response possibilities it is known as a dichotomous questionnaire
 - If it provide with more than two possibilities it is called multiple-choice questions/questionnaire.
 - If it provide with complete freedom to select his most appropriate answer it is known as an open ended questionnaire.

Designing a Questionnaire

Much labor and care are needed in designing a good questionnaire, which must possess two qualities: Brevity and Accuracy.

- By Brevity is meant that the number of questions should not more than necessary. The rule is gathering the data you need but not more than what is needed.
- By Accuracy is meant that the question should be able to evoke accurate response. Accurate response is obtained if the replies form the respondents contain the information sought.

In order to design a good questionnaire there are 15 principles of questionnaire construction that we should follow:

- (1) The questionnaire must intimately relate to the final objective of investigation: One should make sure that the questionnaire items match with the research objectives.
- (2) Understand your research participant: Your participant (Not you) will be filling out the questionnaire. We should consider the demographic and cultural characteristics of our potential participants, so we can make it understandable to them. Respondent knowledge of the subject, ability and willingness should be property weighted.
- (3) Use Natural and familiar language: “Familiar language is comforting; Jargon is not”. If a questionnaire is to be translated for use in to several districts/local

dialects, the translated version of a questionnaire should be retranslated in to the original language to check its fidelity.

- (4) Write items that are clear, precise and relatively short: If your respondent/participant didn't understand the items, your data will be invalid (i.e. your research study will have the garbage in, garbage out, syndrome), the items should be short; short items are more easily understood and less stressful than long items.
- (5) Do not use "Leading "or" Loading" questions: Leading questions always lead the participant to where you want him or her to be. Loading questions include loaded words (i.e., words that create an emotional reaction or response by the participant). Always remember that you don't want the participant's response to be the result of how you worded the questions. Always use natural wording.
- (6) Avoid double- barreled questions: a double –barreled question combines two or more issues in a single question and answer to double barreled questions are ambiguous because two or more idea are confounded.
- (7) Avoid double negatives: Does the answer provided by the participants required combining two negatives? (Ex: I disagree that promoters should not be required to supervise the cooperatives during audit time if yes, rewrite it)
- (8) Determine whether an open- ended or a closed ended question is needed :
 - Open ended question provides qualitative data in the participants' own words. Here is an open ended question: How can your representatives improve the moral/ your participation at your cooperatives?
 - Closed ended question provides quantitative data based on the researcher's response categories. Here is an example of closed ended question:

How difficult do you find learning about research method to be?

 1. very difficult
 2. some what difficult
 3. Not very difficult
 4. Not at all difficult
 5. Don't know

Generally, in closed ended response categories should be inclusive and mutually exclusive. Open-ended questions are common in exploratory research and closed ended question is common in confirmatory research.

- (9) Use mutually exclusive and exhaustive/inclusive response categories for closed ended questions.
- (10) Consider the different types of response Categories available for closed ended questionnaires items (i.e. Rating scale, Ranking, semantic deferential, checklist).

Rating scale: are the most commonly used, including:

- (a) Numerical rating scale: where the end points are anchored/labeled, sometimes the center point also labeled.

1	2	3	4	5	6	7
Very low				very high		

- (b) Full anchored rating scale: Where all the points on the scale are labeled/anchored.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly disagree

1	2	3	4
Strongly Agree	Agree	Disagree	strongly disagree

- Omitting the center point on rating scale doesn't applicably affect the response pattern.
- You should use some where form 4-11 point in your rating scale. 1-10 is not recommended, because many respondents mistakenly view the 5 as a center point.

- (b) Ranking: where participant put their responses in to rank order, such as most important, second most important and third most important.

(c) Semantic differential: Where one item stem and multiple scales, there are anchored/ labeled with polar opposite or antonyms, are included and are rated by the participants.

(d) Checklists: Where participants “check all the responses in a list that apply to them.

(11) Use multiple items to measure Abstract constructs: This is required if you want your measure to have high reliability and validity. One approach is to use a summated rating scale. Another name for a summated rating scale is a Likert scale because the summated rating scale was pretty much invented by the famous social psychologist named Rensis Likert.

(12) Consider using multiple methods when measuring abstract constructs: The idea here is that if you only use one method of measurement, then your measurement may be an artifact of the method of measurement. On the other hand, if you use two or more methods of measurement you will be able to see whether depend on the method.

(13) Use caution if you reverse the wording in some of items to prevent response sets: (A response set is tendency of a participant to respond in a specific direction to items regardless of the item content). Reversing the words of some items can help ensure that participant don't just “speed through” the instrument, checking “yes” or “strongly agree” for all the items. On the other hand, you may want to avoid reverse wording if it create a double negative. Also recent research suggests that the use of reverse wording reduce the reliability and validity of scales. Therefore, you should generally use reverse wording sparingly, if at all.

(14) Develop a questionnaire that is easy for a participant to use: The participant must not get confused or lost anywhere in the questionnaire. Make sure that the direction(s) are clear and that any filter questions used is easy to follow.

(15) Always Pilot tests your questionnaire: in pilot testing your questionnaire, you will always get/find some problems that you have overlooked. The best pilot test

is with people similar to the ones to be included in your research study. After pilot testing your questionnaire revise it and pilot test it again, until it works correctly.

- to decide the proper form and structure
- to understand questions that will be misunderstood or which arouse defensiveness.
- To improve the questionnaire design in terms of format, quality of instruction, need for filter or screening question, and amount of spacing required.
- It gives firm estimates of the amount of time, money, personal and equipment required.

Strength and Weakness of Questionnaires

Strength: Good for measuring attitudes and eliciting other content from research participants, inexpensive, can provide information about the participants internal meaning and ways of thinking, can be administered to probability samples, quick turn round, can be administered to groups, Moderately high measurement validity for well constructed and validated questionnaire, provide exact information needed by researcher (especially the closed ended questions), ease of data analysis (for closed ended), useful for exploration as well as confirmation, free from bias of the interviewer, give adequate time to give well thought out answers, and large sample can be made use of and thus the results can be made more dependable and reliable.

Weaknesses: usually must be kept short, reactive effect may occur (e.g. interviewees may try to show only what is socially desirable), non response to selective items, low response rate, open ended items may reflect differences in verbal ability, obscuring the issue of interest, measures need validation, used only when the respondents are educated and cooperating, and slowest of all.

Interview and schedules

Interview

The interview method of collecting data involves presentation of oral verbal stimuli and replay in terms of oral verbal response. This method can be used through personal (face-to-face) interviews and if possible through telephone interviews.

- ❖ Interview may be in the form of direct personal investigation or it may be indirect oral investigation. Personal investigation: In this case the interviewer has to collect the information personally from the sources concerned. He has to be on the spot and has to meet people from whom data have to be collected. Indirect oral Investigation: In this case the interviewer has to cross-examine other persons who are supposed to have knowledge about the problem under investigation and the information obtained is recorded.

Interview can be also two type based up on the degree of structure that is:

(1) Structured interview and (2) Unstructured interview

(1) Structured interview

- Such interview involves the use of a set of predetermined questions and of highly standardized techniques of recording.
- The interviewer usually follows a rigid procedure laid down, asking questions in a form and order prescribed.

(2) Unstructured interview

- Characterized by a flexibility of approach to questioning.
- Do not follow a system of pre-determined questions and standardize techniques of recording information.
- The interviewer is allowed much greater freedom to ask, in case of need, supplementary questions or at times he may omit certain questions if the situation so requires. However, this may result in lack of comparability of one interview with another and analysis of unstructured response becomes much more difficult and time consuming.
- Demand deep knowledge and greater skill on the part of the interviewer.
- It is a central technique of collecting information in the case of exploratory research studies. Generally, in this method of data collection, trust and rapport are important and probing is available and is used to reach clarity or gain additional information. (Examples of probing, anything else? Any other reason? What do you mean)

Strength and Weakness of interview

Strength: Good for measuring attitudes and most other content of interest, Allow probing and posing of follow up questions by the interviewer, Can provide information's about participant's internal meaning and ways of thinking, Closed-ended/ structured interview provide exact information needed by researcher, Can use with probability samples, Relatively high response rate are often attainable (sample can be controlled more effectively), Useful for exploration as well as for confirmation, There is a greater flexibility, Ease to obtain personal information, and Useful to collect supplementary information and language the interview can be adapted to the ability/education level of the person interviewed.

Weaknesses: In person interview usually are expensive and time consuming, Reactive effect (e.g. interviews may try to show only what is socially desirable), Investigators effect may occur (e.g. untrained personal biases and poor interviewing skills), Interviewees may not recall important information's and may lack self-awareness, Data analysis is time consuming, and Measure needs validation.

FOCUS GROUPS

The Focus Groups Discussions had its origin in the evolution of audience responses to radio programs in 1941 by Robert Metron, prominent social scientists. Metron applied these techniques to the analysis of army training and moral films during World War II.

Definitions

- Focus Groups Discussion defined as “a group of individuals selected and assembled by researchers to discuss and comment on, from personal experience, on the topic that is the subject of the research.
- It is careful planned discussion designed to obtain perceptions in a defined area of interest in a permissive, non- threatening environments.
- It is a form of group interviewing but it is important to distinguish between the two. Group interviewing: involve interviewing a number of people at the same time, the emphasis being on question and response between the researcher and

participants (i.e., limited to those situations where the assembled group is small enough to permit genuine discussion among all its members and researchers). Focus Groups: A method rely on interaction with in the group based on topics that are supplied by the researchers, to obtain perceptions, attitudes, feelings of respondents in a defined area of interests.

The Purpose /Roles of Focus Groups

- Help to draw up on respondent's attitudes, feelings, beliefs, experiences and reaction in a way in which would not be feasible using other methods.
- Enable the researcher to gain large amount of information in a short period of time, since it is organized events, not depend on a natural event to be happen like observation.
- Elicit a multiplicity of view and emotional processes within a group context.
- Help to explore the degree of consensus on a given topic.
- Useful at the preliminary/ exploratory stage of a study and after a program has been completed;
 - ▶ To explore/generate hypothesis and develop question concepts for questionnaire and interview guide at preliminary stage.
 - ▶ To asses its impact or to generate further a venues of research after program has been completed, and
 - ▶ To evaluate or develop a particular program of activities during the time of a study.

Strengths and Weaknesses of FGDs

Strength: Useful for exploring ideas and concepts, Provides window in to participants internal thinking, Help to obtain in- depth information, Can examine how participants react to each other, Allows probing, Most content can be tapped, and Allows quick turnaround.

Weaknesses: Sometimes expensive, May be difficult to find a focus group moderator with good facilitative and rapport building skills, Reactive and investigator effects may occur if participants feel they are being watched or studied, Difficult to generalize results if small, unrepresentative samples of participants are used, May included large amount of extra or unnecessary information, Measurement validity may be low, Usually should not

be the only data collection methods used in a study, and Data analysis can be time consuming because of the open-ended nature of the data.

Observation

Observation is a very important technique of data collection in use in experimental and non-experimental, social and anthropological research. In the strict sense it implies the use of the eyes rather than the ears and the voice in scrutinizing collective behaviors. In this method, the researcher observes participants in natural and/or structured environment. The investigators obtain the data by watching and noting the phenomena as they occur with regard to their cause and effect or mutual relations.

Definition

1. A systematic description of events, behaviors and artifacts in the social setting chosen for study. (Marsall a Rossman)
2. The process of learning through exposure to or involve in the day-to-day or routine activities of participants in the research setting.
3. Is the process of enabling the researcher to learn about the activities of the people under study in the natural setting through observing and participating in those activities

Observation can be carried out in two types of environment in laboratory observation (which is done in a lab set up by the researcher) and Naturalistic observation (which is done in real world setting).

Types of Observation

- (1) **Simple/ uncontrolled:** Simple/ uncontrolled observation is those which do not make use of any standardized observational techniques such as carefully draw out schedules, questionnaire, test etc. With the result there are no checks on the observer's biases, his selection perception, his prejudices and desire become concisely woven with the fabric of his conclusions. Also there is no check on the reliability of information. The data collected by any two observers can not be compared. To the intent that each observers record of experience is uniquely his own, the data gathered by him cannot be compared with those gathered by any other observer. The gives rise to the problem of standardization. However, despite its weaknesses, the use of this method is common in exploratory social investigations. Uncontrolled/ simple observation may be of three types:

(a) **Participant Observation:** This method followed in the investigation where there is need to penetrate deep in to the inner chamber of the group which is studied. In participant observation the researcher becomes a part of the community, while observing their behaviors and activities. The observer generally lives in the group which he is studying without revealing his identity. In this approach the researcher is interactively involved with the observed group as a member. Ex: to study the secret rituals of a tribe. The success of this method depends up on two factors: First: The investigator must have the skill to gain the confidence of the persons being studied so that his presence does not disrupt or in any way interfere with the natural course of events and they provide him with honest answer to his questions and not hide important activities from his view. Second: The investigator should have the ability to prevent his own preconceptions from distorting his interpretations. He should collect a wide range of facts as is possible and should not begin shifting and interpretations them until he has gained enough familiarity about the general life pattern of the people begin studied.

(b) **Non-participant observation**

In some/many research situation it is almost impossible for the observer to himself participate in all ways. For example a researcher cannot become a criminal in order to study a criminal or a female social scientist can not become prostitute in order to study prostitutes. In all such cases the researcher may collect data as a non participant observer. In this approach, type of uncontrolled observation the researcher is isolated from the observed group. The observer either asks questions and records the answer or observes the group from a distance.

Advantage: Beneficial to observe a group from an external point of view where personal involvement plays no obstructive roles.

Disadvantage: - lack reliability/consistency

- time consuming
- Restricted by the amount of people that can be observed at one time.

(C) **Quasi-Participant Observation**

Purely participant and non participant observation is difficult. In the absence of any standard set of relationships or role patterns for the outsider who is always present but

never participating, both the group and the outsider are likely to feel uncomfortable. Therefore, in much social survey quasi-participant observation is preferred.

In this method the observer assumes several roles. Some times he is in the role of a participant taking part in the activities of the group. At other time in the role of an interviewer, a stranger or a listener. Nevertheless, he makes it clear to the group that purpose is to gather-facts.

Generally if the observation taken place in the natural setting it may be termed as uncontrolled/simple observations. In such type of observation no attempt is made to use precision instruments. The major aim of this type of observation to get spontaneous picture of life and person. It has a tendency to supply naturalness and completeness of behavior, allowing sufficient time for observing it.

(2) Systematic/Uncontrolled Observation

The observer bias is the crucial weakness of simple/uncontrolled observation. Systematic or controlled observation tries to overcome this weakness by using various control techniques ranging from sample testing and scoring device elaborate laboratory set ups. In the case of controlled observation the observation takes place according to definite pre-arranged plans, involving procedures. It requires use of precision/mechanical instruments as aid to accuracy and standardization. Such observation has a tendency to supply formalized data upon which generalization can be built with some degree of assurance.

Very often, an exhaustive list of mutually exclusive categories of behavior with a description of each category is prepared and the job of observer is to assign observed behaviors to different labeled categories.

In should be noted, however, the use of controlled observation does not completely eliminate observer's bias. Many times if the categories are vague and the specification is inadequate, different observer can easily put different interpretations on the same behavior. On the other hand to specific categories, while they cut down ambiguity and uncertainty, may tend to be too rigid and inflexible. But such lists definitely enable the observer to tell how he made his observation, under what conditions, when and so on.

(2) Mass observation

This method is used to record mass/ collective behavior of people in public place on the basis of observation and interview. Its objective is to record the collective behavior of people in public places.

When to use observation?

Observation is most effective when one is conducting social research, and is interested in researching people's behavior.

Strength and weakness of observation

Strength: Flexible techniques: it doesn't necessary have to be structured around a hypothesis, it can be used before obtaining a researcher questions, It can examine simultaneous issue at once, Enable the researcher to examine the people's behavior directly rather than relaying on self-reports in questionnaire/interview, Provide firsthand experience, especially if the observer participates in activities, Can provide relatively objective measurement of behavior, Observer can determine what does not occur, and Good for description and provide moderate degree of realism.

Weakness: In observation the researcher might faced with values and beliefs that lack any behavioral reference, In line with the above, paid fall, reasons for observed behavior may be unclear, Observation sometimes result multiplication of explanations to given problem/ behavior, Inhabited by situational constraints, Reactive effects may occur when respondents know they are being observed, Investigators effect (ex: personal biases and selective perceptions of observers), Observer may 'go Native' (over identifying with the groups being studied), Expensive than other methods, and Time consuming- especially during the data Analysis.

