

Methods and Tools of Data Collection

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Introduction

After the finalization of the sample, the researcher has to work out his/her strategies for data collection. There are various methods and tools of data collection. We use these methods as well as tools both in theoretical study and empirical study. It is important to note that the methods and tools will vary depending upon the nature of study. In some studies, we may have to use more than one method or tool for data collection. In this chapter you will be able to learn about methods and tools of data collection in detail along with methods of social research and research design. These are very important concepts for a social worker who is interested in conducting a meaningful research.

Sources of Data

The two main sources of data in social research are 'people' and 'paper'. The responses of questions put to people constitute the major sources of data in social research. This source is labeled as primary source of data. A large amount of data is already available in the form of 'paper' sources. This includes documents, historical records, diaries, biographies, statistical records etc. The 'paper' sources are commonly known as secondary sources of data or 'available data source'.

When a researcher decides to collect data through primary source he has three options, namely, observation, interview and questionnaire. In case he opts for secondary source of data he uses the methods of content analysis.

Methods and Tools of Data Collection

Following three methods are employed in collecting data from primary sources:

- 1) Observation
- 2) Interview
- 3) Questionnaire

Observation

Observation is the basic method of obtaining information about social phenomena under investigation. All of us are constantly engaged in observation. However, all such observations are not scientific observations. Observations become a method of data collection when it is planned in accordance with the purpose of research and recorded systematically keeping in mind the validity and reliability of observed data.

There are numerous situations where this method of observation is considered as most appropriate. Say for example, a researcher who is interested in understanding the behaviour of children who cannot speak, necessarily, has to depend on this method of observation. Many aspects of our behaviour are so much a part of life that it becomes difficult to translate it into words. Many a time, a researcher faces resistance from respondents being studied. Sometimes, people do not cooperate with the researcher and show their unwillingness to respond to the questions of the researcher. Although observations cannot always overcome such resistance, it is

relatively the most appropriate method of data collection in such situations.

The method of observations serves variety of research objectives. Exploratory objectives are worth mentioning here. A researcher can explore some aspects of his main research question or can gain insight into the research problem and develop the basis for his hypothesis. It may also be used to collect supplementary information that would help interpret findings obtained by other methods.

Type of Observations

There are several types of observations varying from completely unstructured to structured, pre-coded, formal procedures to suit the needs of researchers and the overall objectives of the research problems. One way of differentiating among various types of observations is to draw distinction on the basis of degree of structuredness. Accordingly, we get two observational procedures: (1) unstructured and (2) structured. The other way of classifications is in terms of the role played by the researcher. On this basis observation procedures may be classified as (1) participant observation and (2) non-participant observation.

Structured Observations

Structured observations take into consideration a clear and specific definition of the units to be observed and data to be recorded. This is possible only when the problem is well formulated. However, in exploratory studies the researcher does not know in advance which dimension of the problem will be relevant. Structured observations are mostly used in studies designed to describe a problem or to test causal hypothesis. The use of structured observation procedures presupposes that the researcher knows what aspects of the problem under study are relevant

to his research objectives and is in a position, therefore, to plan the recording of observations before he starts data collection.

Unstructured Observations

In a practical situation it is often not possible to plan out the 'observation' process in advance. Particularly in case of exploratory studies, the researcher does not have enough clues to structure his observations, which may call for changes in what he observes. Such changes are characteristics of unstructured observation. Since the unstructured observations are flexible it allows for changes in the focus from time to time if and when reasonable clues warrant such changes.

Participant Observations

Participant observation involves sharing the life of the group under study by the researcher. In other words, participant observation is an attempt to put both the observer and the observed on the same side by making the observer a member of the group so that he can experience what they experience and work within their frame of reference. In particular, the researcher becomes a member of the community being observed by him.

Non-participant Observations

On the contrary, non-participant observation is characterised by a lack of participation by the observer in the life of the group that a researcher is observing. In other words, in non-participant observations the observer has detached role and records without any attempt on his part to participate in the interaction process with the group being observed.

Interview

The interview is a verbal interaction between the researcher and the respondents. This method has

been a widely used method of data collection. This method involves presentation of verbal questions orally and collecting oral verbal responses. Many feel that the best way to find out why people behave as they do is to question them about their behaviour directly by interviewing them. In this method, the interviewer asks questions in a face-to-face contact (generally) to the interviewee, the person who is being interviewed who gives answers (mostly) to these questions.

Interview has been a widely used method of data collection so far as, information about the social background, opinion, attitudes, changes in relations are concerned.

Types of Interview

Interview has been classified in different ways. One way of classification of interviews is based on their functions, such as diagnostic interviews often used for clinical purposes. The other way of classification of interviews is the number of persons participating in the interview process, for example, individual interview or group interviews. Yet another basis of classifying interviews is the format used for interview, for example, structured and non-structured. Any one of the bases can be relied on to classify the various types of interviews just mentioned above. Most probably, the easiest and most convenient way to classify them is the degree to which they are structured.

The Structured Interviews

As the name suggests, structured interviews maintain some control over the respondents. Nevertheless, considerable flexibility is permitted in deciding the extent to which interviews should be structured. First and foremost area, through which an interview is structured, is the questions and its responses. The questions in an interview are regulated to get

appropriate responses. In so far as responses are concerned they are regulated and controlled by giving multiple choices to the interviewee. To achieve this, first the questions have to be in order and focussed to get reliable and appropriate responses; it is beneficial to ask questions in same order from one interview to another interview.

The Unstructured Interviews

In unstructured interviews questions are not ordered in a particular way. The order of questions is not fixed. In other words the order of questions followed in one interview may not be followed in the next interview. Even the questions asked are not worded in the same way. In sum, the interview is free of regulation and control.

Group Interview

In an interview we call for questioning each individual separately. Where as in group interviews, we interview more than one individual at a time. In a group interview as many as eight to ten people may discuss the subject matter of an investigation under the direction of an interviewer. However, such interviews are more satisfactory as a source of hypotheses or as a way of gathering information about the group, they do not ordinarily yield systematic information from every individual in the group on each point covered in a personal interview.

Telephone Interviews

Telephone interviews are conducted in cases where individuals are likely to have telephones, but who are scattered in a large geographical area. Telephone interviews typically combine the advantages and disadvantages of both mailed questionnaire and personal interviews. Low cost and rapid completion with relatively high response rates are the major advantages of telephone interview. It is possible to

conduct large scale surveys through telephone interviews within a few hours of the occurrence of a traumatic event in order to illicit immediate reactions. The major reservation about telephone interviewing has been that those people who have telephones are not representative of the general population.

Questionnaire

The preceding section discussed the observation and interview methods of data collection. In this section we discuss the questionnaire as a method of data collection, the contents and type of questions followed by the format and sequence of questions.

Content of Questions

Questionnaire enlists questions, which translate the research objectives into specific questions. The question must also encourage the respondent so that the necessary data is obtained. It is to these two ends that the question becomes the focus around which the questionnaire is constructed. One of the major issues involved in formulating the question is its content. The major issues on which questions may be concerned are facts, opinions, attitudes, respondents' motivation, and their level of acquaintance with a research problem. By and large, questions can be classified into two general categories, namely, (1) factual questions and (2) opinion and attitude questions.

Factual Questions

Factual questions are asked to elicit information from the respondents regarding their background, such as sex, age, marital status, education or income. The following is an example of such a question:

1) What is your level of education? (please check one)

- 1. Graduate ()
- 2. Intermediate ()
- 3. High School ()
- 4. Middle School ()
- 5. Primary ()
- 6. Illiterate ()

Other kinds of factual questions are intended to elicit information on the profile of the respondents (sex, marital status, income, work experience, place of residence, nativity etc.).

- 1) Name
- 2) Age in Years :
- (As on 1st July, 1999)
- 3) Designation :
- 4) Establishment :
- 6) Marital Status :

 - 1. Married ()
 - 2. Unmarried ()
 - 3. Widow ()
 - 4. Divorcee ()

- 7) Husband's Occupation :
- 8) Husband's Work Place :
- 9) Husband's Salary/Wages :

- 10) Religion : 1. Hindu ()
 2. Muslim ()
 3. Christian ()
 4. Any other ()

It looks easier to design factual questions. However, many a times factual questions pose the researcher with problems. In a survey many respondents misunderstood religion as a 'faith/belief' and reported that they do not believe in religion. Similarly, in other research study pertaining to socio-economic status, many failed to mention income out of milch animals, kitchen garden and poultry because they did not consider it as a source of income. Further, most probably, the sources of income are either wages or cash value of crops.

These two examples point to failure of communication system between the researcher and the respondents. A researcher is required to have a clear definition of the concept and is also required to communicate exactly the same to avoid such problems.

Opinion and Attitude Questions

The concept "attitude" refers to the sum total of a person's inclination, prejudices, ideas, fears, and convictions about any specific topic. Opinions, on the other hand, are the verbal expression of attitudes (Thurstone, 1928, p.33). Thus, a statement such as "Child labour should be banned" would reflect an opinion that is against child labour, but an attitude towards child labour would mean a more specific orientation of what a person feels and thinks about child labour.

Attitudes can be described by their content (what the attitude is about), by their direction (positive, neutral, or negative feelings about the object or issue in question), and by their intensity (an attitude

may be held with greater or lesser vehemence). To one person, child labour may be just of passing interest; to another, it may be of great significance and that person may be ready to join anti-child labour movements.

Questions about opinions and attitudes present more problems in construction than questions about facts. Comparatively, it is simpler to obtain accurate data, for example, whether or not a person is married. It can be assumed that the respondent knows whether he or she is married or not. However, questions on opinions or attitudes, the assumption that the respondents know cannot always be made. For example, respondents may not have either positive or negative attitude towards child labour, or if they do, it might be largely latent (Moser and Karlton, 1975, p. 317). Moreover, as there are various aspects or dimensions of attitudes, the respondent may agree with one aspect and disagree with another. This is the reason why attitudes cannot be measured by a single question. For example, if a respondent strongly agrees with the statement "Child labour should be banned," this does not imply a broad anti-child labour attitude. This person's agreement may be due to personal circumstances; for instance, the person who may be unemployed thinks that child labour would harm his or her prospect of employment. By using a set of statements, one can reduce the effects of one-aspect responses.

Finally, answers to opinion and attitude questions are more sensitive to changes in wording, emphasis, and sequence than are those to factual questions. This reflects, in part, the multidimensionality of many attitudes. Questions presented in different ways sometimes reflect different aspects of the attitude and thus result in different answers.

Formats of Questions

The format of the question and the response categories accompanying the questions are other aspects, which

need attention of the researchers. Three types of question formats are discussed in the following sections: (1) open-ended questions, (2) closed-ended questions and (3) contingency questions.

Open-Ended and Closed-Ended Questions

Questions in a questionnaire can be either open-ended or closed-ended. In a closed-ended question, respondents are offered a set of answers from which they are asked to choose the one that most closely represents their views. For example, to measure sex discrimination against women in the unorganised sector the author used, among other questions, the following closed-ended question:

“Are you aware of the Equal Remuneration Act?

1) Yes 2) No

“Equal remuneration should be given to men and women for same work or work of similar nature.”

- Strongly agree
- Agree
- Indifferent
- Disagree
- Strongly disagree

Open-ended questions are not followed by any kind of specified responses, and the respondents' responses are recorded in full. For instance, the question “What do you personally feel are the most important issues related to child labour which the government should try to take care of?” is an open-ended question used frequently in questionnaires designed to study public opinion. The advantage of the open-ended question is that it does not force the respondent to adapt to predetermined responses: having understood the

question, one can express one's ideas freely, spontaneously and in one's own language. If the answers to open-ended questions are not clear, the researcher may probe, that is, ask the respondent to explain further or to give reasons for something stated earlier.

Contingency Questions

Frequently questions that are relevant to some respondents may be irrelevant to others. For example, the question "Check the most important reasons why you are not going to college" obviously applies only to those intermediate students who are not planning to go to college at all. It is often necessary to include questions that might apply only to some respondents and not to others. Some questions may be relevant only to females and not to males; others will only apply to respondents who are self-employed, and so on.

When a question is applicable to only a sub-group of the sample it is known as contingency question. A contingency question is a special case of a closed-ended question and it is one that applies only to a subgroup of respondents. The relevance of the question to this subgroup is determined by the answer of respondents to a preceding question. For example, in a research study the preceding question was, "Are you aware of the Act?" The contingency question could be, "If yes, what do you know about it?" The relevance of the second question to the respondent is contingent upon his or her response to the preceding question. Only respondents who responded "Yes" to the preceding question will find the contingency question relevant. Therefore, the response categories of the preceding questions will be 1. Yes (answer the following question); 2. No (skip to question 3).

Response Format

In this section we will discuss some of the formats of response categories of closed-ended questions. The general format is to present all possible responses and have the respondent check the appropriate response. The respondent can either encircle his or her answer or check a box or a blank as in the following examples:

“What is your marital status?”

- | | | | |
|----------|--------------------------|----------|-------------|
| Married | <input type="checkbox"/> | Married | 1. Married |
| Single | <input type="checkbox"/> | Single | 2. Single |
| Divorced | <input type="checkbox"/> | Divorced | 3. Divorced |
| Widowed | <input type="checkbox"/> | Widowed | 4. Widowed |

Rating Scales

One of the most common formats for questions asked in social research is the rating scale. The rating scale is used whenever respondents are asked to make a judgment in terms of sets of ordered categories, such as “agree,” “favourable,” or “very often.” For example:

Attitude of the Employer

The employers prefer male employees because we take more sick leaves and quit more readily.

- 1) Agree () 2) Undecided ()
3) Disagree ()

The employers feel that we can't cope with stressful situations like men can and as such don't give us work like men.

- 1) Agree () 2) Undecided ()
3) Disagree ()

We are not given responsible positions because of their belief that most women are too emotional to be able to handle positions of great responsibility.

- 1) Agree () 2) Undecided ()
- 3) Disagree ()

The employer takes advantage of us being women and sexually exploits us.

- 1) Very Often () 2) Often ()
- 3) Rarely ()

Matrix Questions

The matrix question is a method for organising a set of questions that have the same response patterns. The following is an example of matrix questions.

“In my work place the following welfare services are provided.”

Yes No If yes then what
do you think about it?

	Yes	No	Satis- factory	Fairly factory	Satis- factory	Unsatis factory
1) Crèches and Day Nurseries	()	()	-	-	-	-
2) Maternity Benefits	()	()	-	-	-	-
3) Canteen (common)	()	()	-	-	-	-
4) Canteen (separate)	()	()	-	-	-	-
5) Rest place (common)	()	()	-	-	-	-
6) Rest place (separate)	()	()	-	-	-	-
7) Toilet (separate)	()	()	-	-	-	-

Sequence of Questions

Once the format of questions is decided, a researcher has to consider the order in which questions are

to be placed in the questionnaire. Two general patterns of question sequence have been found to be most appropriate for motivating respondents to cooperate: the *funnel sequence* and the *inverted funnel sequence*.

It should be kept in mind that questions that are presented first in the questionnaire should put the respondent at ease; and if an interviewer is present; they should help in creating rapport between the researcher and the respondent. Thus, the question in the beginning should be easy to answer, interesting, and it should not deal with sensitive issues. For example, questions about drinking habit or sex life of respondents, if placed at the beginning, may demotivate the respondents to answer the subsequent questions. It is therefore, suggested that such questions be placed later, for they reduce the respondent's initial motivation to cooperate.

Questions to be Avoided

Leading Questions

A question worded in such a manner that it appears to the respondent that the researcher expects a certain answer, is commonly known as leading question. A question designed to elicit general opinion about work satisfaction might read, "How do you feel about your work?" The same question worded in a leading form might read, "Are you satisfied with your work?" This question makes it easier for respondents to answer *yes* than *no*. In answering *yes*, they are agreeing with the words of the question and are not contradicting the researcher.

As far as possible leading questions are to be avoided if one is looking for objective responses. In some situations, particularly, where leading questions may serve the research objective, leading questions with suitable wordings are used with extra care.

Threatening Questions

Threatening questions refer to behaviours that are illegal or contra-normative or behaviours that are socially deviant and are not discussed in public. For example, questions that inquire about the respondent's gambling habits, about their drinking habits, child abuse or sexual behaviours are referred as threatening questions. Often it is necessary to include such questions in studies, which the respondent may find embarrassing and thus difficult to answer.

Though it is suggested to avoid threatening questions as far as possible, in cases where it is necessary to include such questions it is advised to use a long introduction to the question (or may be indirect question) rather than asking short questions (or direct questions); by an open-ended rather than a closed-ended format; and, to a lesser extent, by letting the respondents pick their own words to talk about the sensitive issues. For example, to know about respondent's drinking behaviour the following question may be asked:

“In the past one year, how often you could not control yourself to become intoxicated while drinking?”

Respondents may be asked to classify their responses into one of the following categories:

Once in three month

Once a month

Once a week

Several times a week

Daily

Double-barreled Questions

When two or more than two questions are included in one question it is termed as double-barreled questions. The following question, included in a survey, is an example:

“Women should stay at home and take care of their children and other family members and stop taking up employment outside.”

- Agree
- Depends
- Disagree

The above statement includes two separate questions that are joined by the conjunction ‘and’.

Such questions might confuse respondents who agree with one aspect of the question – stay at home and take care of children and other family members and not with the other – stop taking employment outside. Many questions that includes ‘and’ is very likely doubled-barreled, hence, it is suggested not to include such questions.

Methods of Social Research**Case Study**

A comprehensive study of a social unit – a person, a group, a social institution, a community – is called a case study. It is a study to determine social process; the complexity of factors, their sequences and interrelationships. It is an exhaustive study of a social unit.

In case study information (commonly known as case data) may be gathered exhaustively of an entire life cycle of a social unit or a definite section of it. Whether a section or the whole of a life is studied,

the aim is to ascertain the natural history, that is, an account of the generic development of a person or group, or whatever constitutes the social unit in a particular study, revealing the factors that modeled the life of the unit within its cultural setting (Young, 1966). Because of its aid in studying behaviour in specific, precise detail, Burgess (1949) termed the case study method, “the social microscope”.

Case study method was introduced in social sciences by Frederic Le Play (1806-1862). He used it in his studies of family budgets. Herbert Spencer, was the first to use case materials in his ethnographic studies.

The actual adoption and widespread use of the case study method as systematic sociological field research is attributed to the work of Thomas and Znaniecki. They used extensively personal documents – diaries, letters, autobiographies – and at times combed the files of social agencies, in their search for concrete and specific detail about personal conduct and group behaviour within the cultural situation (Young, 1966).

In gathering case data it is assumed that the identity of human nature persists, by and large, in a variety of circumstances, even though human conduct changes. All human beings share a basic humanity, in spite of unique experiences and personal characteristics (Young, 1966).

Soon after case studies gained considerable prominence in social research the method was challenged for its value as scientific method. It was felt that the method couldn't bring out objective and valid findings. Instead, it was contended that the whole process is subjective and unreliable.

The case study, (a qualitative study) and a study which uses quantitative methods may supplement each other since each views a given situation from different angles and each places a different emphasis

on the social factors in the situation. Some researchers do not believe that case data, and particularly personal life histories, lead themselves adequately to quantitative expression without which there can be no science. Other contend that case data, when carefully selected from representative members of a given group who are capable of providing concrete categorical experiences of their lives, would typify those of others in their group because they tend to react more or less in characteristic manner to the same stimuli in their culture (Young, 1966). Other researchers have seriously questioned the ability of "case-researcher" to identify general types, classes and processes from subjective data and to make valid and verifiable generalisation regarding social life

In studies of social change, social adjustment or un-adjustment, and other types of human behaviour, quantitative methods could confirm or disprove hypotheses, or determine existing correlations, more precisely than can case data. Also quantitative methods aid in avoiding conclusions based on unusual or exceptional cases and in determining the trends of problems.

Conversely, quantitative methods of human behaviour can be enriched and seen in broader perspective if supplemented by individual case studies. The use of the latter also would reduce the danger which threatens those social researcher who limit themselves to describing behaviour in terms of what can be conveniently counted or measured, rather than in terms of what is really useful to know about behaviour (Young).

Social Survey

In a Social Survey or Survey Research, we study large and small population by selecting and studying samples chosen from the population in order to discover

the incidence, distribution and interrelation of psychosocioeconomic variables, personnel interviews, questionnaires and discussions are used as part of this method. The main advantage of this method is that a lot of information can be collected from a very large population. The main disadvantage of this method is that it demands more time, effort and money.

Action Research

This method is widely accepted in social work research. Based on the findings of the research study, the researcher facilitates appropriate action programmes that would benefit the population under study.

Research Design

A research design is the specification of methods and procedures for acquiring the information needed for a study.

Exploratory Design

Exploratory or formative studies are taken up in order to achieve new insights or ideas about a phenomenon. Exploratory studies are usually more appropriate in the case of problems about which little knowledge is available.

Descriptive Diagnostic Design

Descriptive studies aim at portraying accurately the characteristics of a particular group or situation. A diagnostic study aims to find out the relevant variables associated with a problem, which could pave the way for finding a solution.

Experimental Design

The purpose of experimental studies is to test a hypothesis and to study the causal relationship between variables. For an experimental study two groups are

required and compared in terms of the effect of the experimental variable.

Conclusion

There are two main sources of data in social research. The responses of questions put to people constitute the primary source of data. Documents, historical records, diaries, biographies, statistical records etc. are commonly known as secondary sources of data or 'available data source'.

Observation is the basic method of obtaining information about social phenomena under investigation. There are numerous situations where this method is considered as most appropriate. Observations serve variety of research objectives. A researcher can explore some aspects of his main research question or can gain insight into the research problem and develop the basis for his hypothesis. It is also used to collect supplementary information that would help interpret findings obtained by other methods.

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Interview has been classified in different ways. For example, individual interview or group interviews.

Yet another basis of classifying interviews is based on the format used for interview, for example, structured and non-structured.

Another widely used method of data collection is questionnaire. It enlists questions, which translate the research objectives into specific questions. One of the major issues involved in formulating the question is its content. The other issues on which questions may be concerned are facts, opinions, attitudes, respondents' motivation, and their level of acquaintance with a research problem.

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Case studies method is challenged for its value as scientific method. It is felt that the method cannot bring out objective and valid findings. Instead, it was contended that the whole process is subjective and unreliable.

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