

# THE SCIENCE OF SOCIETY

**A Sociological Introduction**

*Edited by*

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# Chapter 4

## **BASIC METHODS OF SOCIAL RESEARCH**

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## **Introduction**

Sociology and other social science disciplines attempt to study various aspects of human behaviour scientifically. Their goal is to understand, explain and predict human behaviour. In order to achieve this, they collect data which they analyse and make findings, on the basis of which they draw conclusions. The research process normally involves the following stages:

1. Identification of research problem -- the selection of a topic for research.
2. Review of the literature -- familiarizing oneself with the existing research on the topic.
3. Formulation of hypothesis--stating exactly what one wants to test and making a guess on what relationship exists between variables.
4. Determining the research procedure -- choosing one or more research methods to be adopted (that is, either survey, observation, focus group discussion, experiment or use of secondary sources).
5. Carrying out the research -- collecting the data and recording information.
6. Analysis of data -- working out the implications of the data collected and interpreting the results.
7. Reporting the findings -- writing the report and highlighting the significance of the findings as well as pointing out how they relate to previous findings.

The basic methods of social research we shall discuss in this chapter include: social survey, observation method, focus group discussion, experimental method and the use of secondary sources.



## Social survey

Social survey is a method of generating quantitative data in social research. It involves the use of **questionnaire** or **interview schedule** to elicit information from a cross section of a population. Usually, because of the large size of the study population, and given the fact of time, labour and financial constraints, it is impossible to interview or administer our questionnaire to every element in the population. Consequently, a fraction of this population, referred to as a **sample** is normally taken which is studied and the results of which are generalized on the entire study population. A sample is a smaller representation of a larger whole. A good sample must meet two requirements: representativeness and adequacy. A sample is representative if it reflects the characteristics of the population from which it is drawn to an acceptable degree. A sample is adequate if it is of a large enough size to allow confidence in the stability of its characteristics. **Sampling** is thus the selection of a part to represent a whole. The elements of a population selected for interview or questionnaire administration are referred to as **respondents**.

There are various sampling techniques. They are broadly categorized into two - **probability sampling** and **non-probability sampling**. Probability sampling is done in accord with probability theory and it typically involves some random-selection mechanism. Conversely, non-probability sampling is done in some fashion other than any suggested by probability theory; it does not involve any random-selection mechanism. Examples of probability sampling techniques include: simple random sampling technique, stratified sampling technique, systematic sampling technique and cluster sampling technique. On the other hand, the non-probability sampling techniques include: accidental sampling technique, purposive sampling technique and quota sampling technique.

### **Probability Sampling Techniques**

The first probability sampling method to be discussed is the **simple random sampling technique**. In this sampling method, every element in the study population is given an equal non-zero chance of being selected. There are two ways of doing this. The first is called the lottery method while the second is the use of the table of random numbers. In the lottery method, numbers are assigned to all the elements in the study population. These numbers are written out on pieces of papers, put in a container and properly shuffled. They are then randomly drawn out until the desired sample size is reached. This method can only be used when dealing with a small study population. Because of this, the use of the table of random numbers is preferable. The table is normally found in statistics books and it consists of thousands of numbers which are not in any systematic order. Each element in the study population is assigned a number and the numbers selected from the table are included in the sample.

The second technique is the **stratified sampling technique**. Here, a heterogeneous population is stratified on the basis of its characteristics, such that persons with more homogeneous characteristics are grouped together. Different strata are thus created from which the respondents can then be randomly selected: The number of respondents selected from each stratum must be proportional to the size of the population of that stratum. In other words, if the total sample size is to be 10 percent of the entire study population, then, 10 percent of the population of each stratum will be selected. This sampling technique increases precision because it takes the different characteristics of the study population into consideration.

**Systematic sampling technique** is the third. In this, elements are selected at a systematic interval after randomly selecting the first. For example, if a researcher is to select 10 houses in a street with 60 houses, it means that he would have to select one house out of every

six. He randomly selects a house out of the first six houses (say house number 3) and then selects every sixth house afterwards (i.e. house number 9, 15, 21, 27 etc.).

The final probability sampling method is **cluster sampling technique**. This is used where the population to be studied spreads across a wide geographical area such as a big town. The town is divided into different clusters, political wards for example, and some of these clusters are then randomly selected from which we can then randomly select our respondents. It is also referred to as **multi-stage sampling technique**.

### *Non-Probability Sampling Techniques*

The first non-probability sampling technique is the **accidental or fortuitous sampling technique**. In this, like the name implies, respondents are chosen accidentally. The researcher simply selects respondents as he finds them until he achieves his desired **sample size**. For example, if he wants to find out the opinion of taxi drivers on the hike in fuel price, he simply goes to the motor park and interviews the drivers he finds there.

The **quota sampling technique** is another. This method is used when a researcher urgently needs information on the opinion of the public on a particular issue. Here, a prescribed number (quota) of respondents is selected for interview on the basis of common interests or on the basis of sex. Newsmen usually use this method to seek the opinion of the public on a topical issue. They may want to quickly know the opinion of the public on the problem of acute scarcity of fuel (petrol) in the country. The field assistants could then be asked to go to the streets and interview 20 drivers, 20 passengers, 15 market women and may be 10 students.

Finally, the **purposive sampling technique** (also known as **expert choice or judgmental sampling**) is based on the expert knowledge of the researcher, of the study area. Based on his



knowledge, he purposes in his heart to proceed to areas where he thinks his subjects may be found or areas in which he could find persons who could give him the kind of information he needs. This technique is however prone to the introduction of biases just like it is with all non-probability sampling techniques.

Both probability and non-probability sampling techniques have their strengths and weaknesses. Because probability sampling is done in accord with probability theory, which involves some random-selection mechanism, the researcher's personal values and judgements are limited and thereby minimizing the risk of biasing the data. However, probability sampling is usually more expensive and less convenient to achieve. On the other hand, non-probability sampling is often cheaper and more convenient. But, owing to the fact that respondents are chosen accidentally or in some other non-random fashion, the risk of biasing the data is high. Thus, normal probability statistics can only be used with considerable caution in evaluating the results.

### *The Questionnaire*

The questionnaire is a research instrument used for eliciting information from respondents. It normally contains a set of questions meant to achieve this purpose. The first page normally begins with an introduction. In it, the researcher introduces him or herself and the topic of research. He also solicits for cooperation from the respondents and assures them that every information supplied will be treated with utmost confidentiality.

Questions are asked on the socio-economic and demographic characteristics of respondents, such as sex, age, marital status, religion, level of education, and occupation to mention a few; and on the subject-matter of inquiry. Questions asked could either be closed-ended or open-ended. In closed-ended questions, the researcher

presents a fixed alternative answers from which the respondent is expected to pick one. For example, a closed-ended question could take the following form: What is your marital status?

1. Single
2. Married
3. Separated
4. Divorced
5. Widowed

The respondent is simply expected to tick the applicable option. On the other hand, in the open-ended question, the respondent is not restricted to a set of answers. He is expected to freely express his opinion. For example, an open-ended question could take the following form: What do you think is the right punishment for corrupt politicians?

In designing a questionnaire, the researcher should ensure that questions are short and straight-forward. The wordings of questions must be precise, simple and easily understandable. Leading questions (that is, those questions which suggest expected answers) should be avoided and questions on controversial and/or embarrassing topics should be left until the end of the questionnaire. The questionnaire should not be too lengthy.

An already designed questionnaire should be **pre-tested**. **Pre-testing** involves trying out the questionnaire on a few respondents to be sure that the questions are well understood and that there are no ambiguities of any sort. Some authors refer to this trial test as **pilot study**. Any ambiguity discovered must be corrected before printing out a large quantity of the questionnaire and before proceeding on the data collection exercise.

There are different modes of administering the already pre-tested questionnaire. Questionnaires could be self-administered, in which case the researcher or his field assistant gives the questionnaire to the respondent who is expected to complete it and return it to the



researcher. This is however only possible if the study population is well educated. Questionnaires could also be mailed to respondents. The respondents are expected to complete them and then mail them back to the researcher. This is used if the respondents are scattered and live very far apart. However, this only works in a country with a very efficient postal system. Even so, the response rate is usually very low.

### ***Interviews***

Besides the self-administered and mailed-questionnaires, information could also be obtained from respondents via the use of interviews. It should, however, be noted that the basic difference between a questionnaire and an interview schedule is that while the questionnaire is administered to a well-educated population, in a non-literate population, respondents could only be personally interviewed. Hence, there is face-to-face interview in which the researcher or his field assistant (interviewer) personally interviews a respondent and records the responses. This mode of interviewing is particularly useful in a non-literate population and it has a higher response rate than the other modes. It could be used to handle complicated topics. However, it is time consuming and very expensive. Finally, there is telephone interview which could be used to handle short interviews on uncomplicated topics. The problem with this is that it excludes respondents who do not have telephone.

### **Observation method**

Observation method is used to generate qualitative data in social research. It is commonly used by social anthropologists to study groups and small communities. Observation method varies in a continuum depending on the level of participation or involvement of

the researcher in the activities of the group or community he is studying. Hence, there is **non-participant observation** in which the observer merely observes the group he is studying from a distance, and **participant observation** in which the observer becomes a member of the group and gets actively involved in the group's activities.

o A researcher using participant observation method to study a religious sect such as the Celestial Church, for example, would have to join the church, wear a white garment and go bare-footed to church on a Sunday. There, he would participate in the religious activities and rituals while he observes their mode of worship first hand. This method could also be used to study prostitutes, a gang, a club or an association.

o In studying small communities using this method, anthropologists normally move to live in the study community for a period of one to two years. As they participate in the day-to-day activities of members of the community, they observe the people in their 'natural' settings. A lot of detailed information could be obtained as a participant observer listens to conversations daily and sometimes interviews members in an informal way. His observations should be carefully recorded at the end of each day as soon as he gets home. It is advisable not to record in the presence of members of the group. This is to avoid being suspected to be an agent, a spy or an enemy, especially when one is studying a dangerous group such as a criminal gang. Although a more detailed information could be obtained from the group or community studied using this method, the results are not generalizable as in the case of social survey.

### **Focus group discussion**

o Focus Group Discussion (FGD) is a relatively more recent method of social research. It lies somewhere in between interviews in social surveys and participant observation. Unlike social survey

which generates quantitative data. focus group discussion generates qualitative data. It is group interviewing of respondents. In other words, respondents are interviewed in a group of about between 6 and 12 persons.

Some scholars have argued that focus group discussion yields better information on attitudes, opinions, experiences and feelings of respondents on a particular subject matter. For example, it could be used to study family planning attitudes of a population. Although this method is often used in conjunction with other methods, especially social survey, it could also be used independently. When used in conjunction with social survey, the discussions could be conducted before and /or after the survey. Information collected from the pre-survey focus group discussions assist in knowing what and what to include in the survey questionnaire while the post-survey focus group discussions further explore certain areas of interest revealed by the survey results.

In constituting a focus group, a researcher must ensure that the members share similar characteristics. This is to say that members of the group should be homogeneous in terms of age, sex and level of education to allow them discuss the topic in question, freely. When male and female participants are put together in a group, the male tend to dominate the discussion, just like the older and the more educated.

The usual practice is for the members of the group to sit round a table or in a circular form with a facilitator and a note-taker. The facilitator, who sometimes is the researcher himself or the person trained by the researcher for this purpose, normally leads the discussion. He serves as the moderator. It is his duty to ensure that every one in the focus group participates. He tries to control those who tend to dominate the discussion while at the same time he encourages and prompts the reserved ones to also contribute. The work of the note-taker, like the name implies, is to take down notes



as the discussion proceeds. In addition to the notes taken, the discussion is also video or audio-taped and later transcribed for qualitative analysis.

During a focus group discussion session, the facilitator should follow an already prepared guide (the focus group discussion guide) which normally consists of a general introduction, general topics for discussion, specific topics, probing questions and finally, the summary of the discussion. For each discussion session, the note-taker should record the name of the community in which the discussion is held, the description of the group (e.g. women age 15-29 years with primary education), the date of the discussion, the time the discussion started and the time it ended, the names of the facilitator and note-taker and perhaps also, the sitting arrangement of participants. Usually, light refreshments (small snacks and clean water or soft drinks) are provided to the participants at the commencement of the discussion so that the discussion takes place under a relaxed atmosphere. One focus group session may last for between one and one-and-a-half hours.

## **Experimental method**

Among social scientists, the experimental method is mostly used by psychologists. A classic experimental design consists of two comparable groups: the experimental group and the control group. Persons (research subjects) are assigned to the experimental and control groups randomly. The two groups are equivalent or equally matched except that the experimental group is exposed to an independent variable while the control group is not. In other words, the experimental group is subjected to a particular treatment.

In order to assess the effect of the independent variable, the researcher takes two measurements for each of the groups, one pre-test measurement and one post-test measurement. The difference between the pre-test and post-test scores for the experimental group

is then compared with that of the control group. If the difference in the experimental group is significantly greater than that in the control group, one can then infer that the independent variable influences the dependent variable.

A simple illustration will make the above explanation clearer. Let's take the example of a researcher who is interested in knowing the effect of a tranquillizing drug on the functioning of memory of a group of students. In this case, the tranquillizing drug is the independent variable while the functioning of memory is the dependent variable. What he does is that he first randomly assigns the students to the experimental and control groups. For each of the students in each of the groups, he reads out loudly, a series of numbers. Those numbers are read only once. After some minutes, he asks each of the students to recall those numbers and he records their performance (the pre-test scores). Thereafter, he administers the tranquillizing drug to the experimental group but instead of the tranquillizing drug, he administers placebos (that is, pills that do not contain medicine) to the control group without letting its members know that what they are given does not contain the active ingredient of a tranquillizer. The researcher now repeats the process. He reads out loudly a series of numbers to each of the students in each of the groups and requests each of the students to recall those numbers after some minutes. He again records their performance (post-test scores). The pre-test scores are then compared with the post-test scores in the experimental group and in the control group. If the difference between the two sets of scores is greater in the experimental group, the researcher may then infer that the tranquillizing drug (independent variable) influences the functioning of memory (dependent variable). This means that the independent variable is causally related to the dependent variable.

The experimental method is usually very rigorous. However, results of observations based on it are usually highly regarded.

## **Use of secondary sources**

The methods discussed so far (i.e. social survey, observation method, focus group discussion and experimental method) are sources of primary data. In other words, the data are collected by the researcher primarily for his research. However, a researcher may also use data collected by someone else. The researcher uses information already existing which were not originally collected for his research. These are referred to as secondary data. The researcher must, however, exercise caution in his use of secondary data in order to ensure that the information he is using is actually relevant to his study.

Secondary data are classifiable into two broad categories - expressive documents and statistical data. Expressive documents include such things as letters, life histories in diaries and autobiographies, newspaper stories, memoirs of diplomats, court records and official histories. Depending on what a researcher is studying, these documents could be good sources of information.

The second category, statistical data, include census data, vital registration data, educational statistics, voting statistics, automobile registration, health statistics and crime statistics. These secondary data may be obtained from relevant organizational bodies and may be used by the researcher in his study of the problem at hand.

## **Data processing and analysis**

The way and manner data are analysed depend on the topic of research and the type of data (that is, whether it is qualitative or quantitative data). Qualitative data are those described by verbal or non-numerical entities such as good, poor, high, low, hard, soft, effective, etc. Quantitative data, on the other hand, have numerical values and hence, useful for prediction. The focus and objectives of the study as well as the skill of the researcher also determine the method of data analysis. With respect to the focus and objectives, for



example, a study designed to test specific hypotheses will be analysed differently from an exploratory study which merely requires a description of the socio-economic characteristics of the study population.

Generally speaking, the analysis of qualitative data involves a description of the data and a provision of a general summary of observation and impression. On the other hand, the analysis of quantitative data involves the use of mathematical and statistical tools and it requires the use of computers. The rest of our discussion on data processing and analysis is mainly on this quantitative approach.

Information gathered from the field cannot be easily analysed without a form of processing. This data processing serves as a link between data collection and data analysis and it involves two major steps - editing and coding. The editing process prepares the questionnaire or interview schedule for the coding process. It involves reading through and checking all questionnaires submitted to ensure they are error-free. The main purpose is to ensure completeness, legibility, clarity, consistency and uniformity in the responses provided in the questionnaires or interview schedules. During this process, all improperly completed questionnaires are rejected and excluded from the analysis. Proper editing makes coding easier.

The main idea of coding is to reduce data into machine readable language and it is very important for those who wish to utilize the computer in their data analysis. It is an operation by which data are organized into categories and a number or a symbol is given to each item according to the category into which it falls. It is the process of translating responses into categories usually numbered, so that they can be tabulated and analysed.

After editing, two steps must be taken before coding is done. The first is to number the questionnaire or interview schedules accordingly. The second is to prepare a **code book**. The code book contains all the codes assigned to the various categories of the

different variables. As it were, it is the dictionary of all the codes used in a particular study and it serves as a guide in coding. Coding must be properly done because it is whatever one feeds into the computer that it will process. If one feeds in rubbish, it will process and return rubbish.

In analysing data in the social sciences, a number of statistical techniques are commonly used. Some of these techniques include measures of central tendency, measures of dispersion, one and two sample tests, correlation and regression analysis. A number of statistical packages are available for use in the social sciences. The Statistical Package for the Social Sciences (SPSS) is particularly widely used. This and other programmes include numerous procedures ranging from simple descriptive techniques to the most sophisticated multivariate analyses. They are designed in such a way that the computer can provide these statistical analyses at high speed.

## **Writing a research report**

A research cannot be said to be completed until the report is written. There is no use carrying out a research without making the findings known. Report writing is therefore a very important part of the research process. The main aim is to communicate the findings of the research to an audience. The kind of audience for whom the report is meant would therefore determine the form, style, language, length and scope of the report. Reports meant for academic journals are usually more technical than those for the general audience, such as administrators or politicians.

A research report should contain an introductory part in which the research problem, the objectives and relevance of study are stated; a literature review; a description of how the data were collected; the analysis of data and the findings of the study. It should also contain recommendations for policy and for further research, based on the findings of the study.

Any tables, graphs and pictorial presentations in the body of the report must be properly placed and correctly labelled. Also, any borrowed idea must be acknowledged and all references must be properly compiled at the end of the report.

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