

# Unit 14

## Elements of Research Design

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### Learning Objectives

It is expected that after reading Unit 14, you would be able to prepare a research design of your own mini research project, which would include the following details.

- ❖ The research problem that you have decided to work on
- ❖ The choice of the field site where you would carry out your research
- ❖ The estimated time and cost of the research
- ❖ Review of already published material relating to your research topic
- ❖ The hypothesis or hypotheses you have set out to test
- ❖ Theoretical orientation of your research
- ❖ The universe and unit of study of the research and methods of data collection
- ❖ Interpreting the data and writing the research findings.

## 14.1 Introduction

Research design is a kind of blueprint that you prepare before actually carrying out research. It is a systematically prepared outline stating the manner in which you plan to carry out your research. You may like to contemplate your research in terms of two facets, namely the empirical facet and the analytical facet. The two facets remain in your mind together while in practical terms you may plan your research in terms of a phase of data collection and another phase of analysing the data. Theoretical orientation and conceptual models in your mind help you decide the kind of data you would collect and to some extent also how you would collect them. Later, while analysing your data, again your theoretical and conceptual understanding of social reality in general will guide you to classify the data and to recognise the pattern in order to explain and present your findings.

Research is an ongoing process consisting of a series of steps, beginning with your identifying various concepts related to your research theme. Once begun, it continues through a set of regulated steps to its conclusion. Unit 14 is about the steps that you state in your research design. We are going to discuss each of the ten broad steps that generally constitute the basic elements of sociological researches. For your assignment of carrying out a mini research project, you may prepare a research design

## 14.2 Structuring the Research Process

The structuring of the research process is an essential part of science. However this does not mean that these steps are always in a sequence. In fact, the various phases of research overlap. At times the first step determines the nature of the last step. The steps involved are not mutually exclusive, nor they are separate and distinct. Figure 14.1 depicts the broad steps researchers usually take in the process.

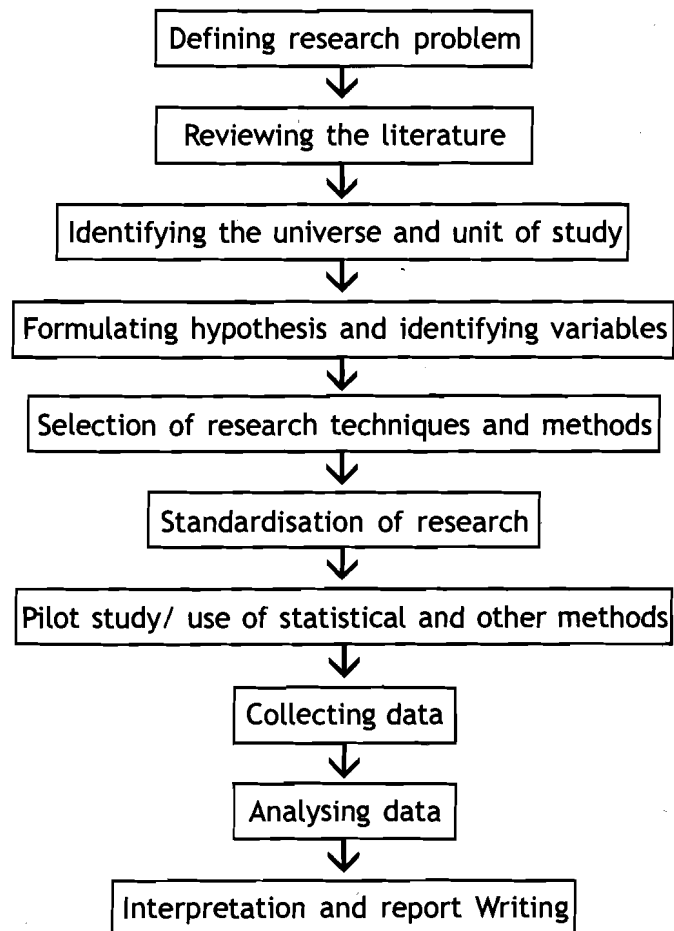


Figure 14.1 Ten Steps in Research Design

Research design is the strategic plan of the project that sets out the broad structure of the research. See Box 14.1 for a brief mention of functions and purposes of preparing a research design.

### Box 14.1 Function and Purpose of Research Design

Black and Champion (1976: 76-77) have pointed out the following three functions of research design.

- ❖ A research design provides a blueprint for operationalising the research activity.
- ❖ It defines the limit and scope of the research.
- ❖ It provides an opportunity to the researcher to foresee possible areas of problems in the process carrying out the research.

Manheim (1977: 142) identified the following five purposes of preparing a research design.

- ❖ To gather sufficient evidence to support one's hypothesis and to disprove alternative hypotheses.
- ❖ To carry out a research that can be repeated in terms of its subject matter and research procedure. In other words, it does not pertain only to unique situation that has no relevance to society at large.
- ❖ To be able to work out correlations among variables in a manner that produces interrelated propositions.
- ❖ To make out the need for a pilot study in order to carry out the future plans of a full-fledged research project.
- ❖ To be able to economise on time and resources by selecting appropriate techniques of data collection.

A highly standardised quantitative research strictly follows the research design while qualitative research is flexible and amendments to the design are possible. Nevertheless, it is always a good idea to formulate a research design. A research design needs to take into account the following considerations, which entail all the steps mentioned in Figure 14.1.

### **Defining your research problem**

In the research process, the first step is to select and clearly define the problem to be researched. You need to find the problem and formulate it so that it can be subjected to research. A research problem in general refers to some enquiry, which a researcher undertakes in the context of either a theoretical or practical situation and wants to obtain an explanation of the same.

The formulation of a general topic into specific research problems constitutes the first step in a scientific inquiry. Essentially two steps are involved in formulating the research problems, that is, understanding the problems thoroughly and rephrasing it into meaningful terms from the analytical point of view. You need to select the subject that is familiar and feasible so that research material or sources of research are within your reach. It is better to select the research problem before a preliminary study of the existing literature. Formulating or defining a research problem is an important step in the research process and a clearly stated problem is research half done.

You need to clearly state the research questions in the light of the topic of research and the theoretical foundations on which it rests. Next, you need to spell out the aims and objectives as per the requirements of your research questions. This gives the research process a well-defined focus and direction. Unless one has a clear idea of the objectives, the course of the research will not be smooth and the data will not have the desired consistency because it is possible for you to approach a topic from the viewpoint of different perspectives, each addressing a different set of issues. For instance, research on the sociology of development can have many research questions like women's role in development, the role of caste and kinship in development, or social consequences of

development on family and community life of people. While preparing a research design, demarcate the focus of research by jotting down the outline and features of the topic and the aims and objectives of research.

#### **Choice of field site(s)**

Embarking on a research, give as much emphasis to the area of research as the topic. To some extent, the choice of the area determines the success of your research. The relevance of a research topic depends on its usefulness to the problems of the area either in terms of a practical purpose or obtaining a theoretical understanding of the epistemological issues. For instance, a study on communal relations cannot be carried out in a tribal village. In such a study, you would need to observe the interaction between different religious groups and therefore you would choose an area inhabited by people of several religious communities. It is desirable to have two or three sub-areas in mind within the broad area. For instance, sometimes you may encounter some unforeseen and unmanageable problems at the district level or the village level and then you would need to find an alternative to fall back upon. You should first spell out your choice of field site(s) and then start gathering information on it. This would help you gain an understanding of the geographical and socio-political conditions of the area, which would have a bearing on the collection of data. This would help you frame your research strategies and questions in a manner suited to the area and its people.

#### **Consideration of time and resources**

You need to be fully aware of the limits of your resources and also clearly define the time frame while designing your research. Unless you draw up a schedule of the different steps of your research, it is likely to become a long drawn process, which is bad for both quality and relevance. Imagine researches on cholera epidemics taking years to complete. The delay would mean poor quality research and an unchecked death rate. We also know that unless you get liberal time your research would fail because you cannot subject social reality to overnight machine tests in the laboratory to obtain quick results. You need to evaluate the time requirement in a realistic manner and plan the strategy accordingly. Careful planning and sticking to a time schedule will help you use your resources effectively and complete the research in time. Besides, you should be aware of the limitations of your resources and plan the strategy in a realistic and cost effective manner. If the resources are exhausted midway, it will be a severe blow to research. If an agency is funding the research, your credibility is at stake. Hence, you need to clearly state in your research design the time and resources that you have for research.

You need also to foresee and note down the effects of your resource constraints on the research process. After identifying the effects you would develop strategies to counter those you can possibly do. The account of those, which cannot be managed, will help future researchers to be familiar with them and deal with them in their projects.

### Reviewing secondary material

The purpose of reviewing the existing literature on your research theme is to help you assess the feasibility of the project but also to formulate an effective methodology. You would need to consult academic journals, conference proceedings, government reports, books, etc (see Box 14.2).

#### **Box 14.2 The Use of Computer in Literature Searching**

For the purpose of making use of the Internet facilities to search related literature, you need to read Unit 32 in Block 8 of Book 3. If your research topic is precisely defined, the search can be a very fast and efficient way of obtaining relevant references in a number of bibliographic tools.

You may review two types of literature, literature concerning the concepts and theories, and the empirical literature consisting of studies made earlier. You may come across even such studies that contain both theoretical as well as substantive aspects of your research. The outcome of the review will be that you will know about available data and other materials on the theme of your research. A more sophisticated and clearer statement of specific research questions is likely to emerge after the literature review.

When researchers prepare a research design they draw an outline of the entire research process. They need to have a clear picture of the nature of data that would help tackle the research questions. For instance, researchers decide in advance how many case studies would help them draw meaningful conclusions or the number of life histories that they need to collect and of which categories of persons. A lot of hard work and insightful thinking goes into the process. Researchers review the past studies on their topics and work upon their research questions to arrive at a realistic research design.

Scheduling the time and events to observe in the field forms an important component of your research design. This provides you a sense of direction while collecting data. This does not imply that you have to strictly follow your schedule regardless of the situation in the field. The actual field conditions do guide you and correspondingly your research design may face unanticipated changes. Yet, you cannot just land up in the field unprepared and bewildered and hence you need to plan out the various stages and strategies of research. At the same time you have to be ready to make adjustments according to the field exigencies.

### Hypothesis

After extensive literature survey, you need to state in clear terms the working hypothesis or hypotheses. The hypothesis is a tentative assumption made in order to test its logical or empirical consequences. You may define a hypothesis as a proposition or a set of propositions set forth as an explanation for the occurrence of some specified phenomena either asserted merely as a provisional conjecture to guide some

investigation or accepted as highly probable in the light of established facts. A hypothesis may seem contrary to the real situation. It may prove to be correct or incorrect. In any event, it leads to an empirical test. Your hypothesis needs to be clear and precise and capable of being tested. It is to be limited in scope and consistent with known or established facts and should be amenable to testing within the stipulated time. It needs to explain what it claims to explain and should have empirical reference.

A hypothesis may have variables and it may be looking for the nature of the relationship between the variables. The variables are empirical properties that take two or more values. For the purpose of research, you need to make a distinction between dependent and independent variables. The variables that you wish to explain are regarded as dependent variables (or criterion variables). The other variable expected to explain the change in the dependent variable is referred to as an independent variable (or predictor variable). The dependent variable is the expected outcome of the independent variable and independent variables produce dependent variables.

Variables can have three types of relationships among them. A positive relationship is one where an increase in one variable leads to an increase in the other. A negative relationship is one where an increase in one variable leads to a decrease in the other. Finally, a zero relationship is one which shows no significant relationship between two variables. Such a distinction between dependent and independent variables is analytical and relates only to the research purpose.

It needs to be mentioned that the formulation of hypothesis is not always a part of the research process. You may carry out exploratory research when you do not have sufficient knowledge of the situation to prepare a hypothesis.

#### **Theoretical orientation**

Your research design needs to clearly spell out the data collection methods to be employed. Your methodological and philosophical orientations govern your choice of methods. Your research design would elucidate the methodological and theoretical basis of research and help you identify appropriate methods and techniques of data collection. For instance, if you have positivistic orientation, you would rely on observational method because for you social reality would be an observable entity. On the other hand if you adopt a phenomenological model, you would employ various kinds of interviews to unravel the logico-mathematical model of culture. A researcher conforming to the post-modernist approach would view social reality as multidimensional and record multiple voices and interpretations. An action research with limited time resources would employ triangulation<sup>®</sup> (comprising multiple methods and multiple investigators), and focus group discussions. You have to carefully choose from the vast repertoire of sociological/ anthropological methods, the

ones that suit your research purpose most.

### **Universe and unit of study**

Before starting with data collection you have to identify the universe and the unit of study. The identification of universe implies demarcation of the physical area and social unit of study. The universe consists of the population within a well-defined area where the study is to be conducted. However, such a group is usually too large and not possible to be covered by a single investigator. Therefore, a smaller and more manageable group may be selected by sampling. The outlines of the universe and its attributes may be delineated more clearly by a taking a census and then making the choice of the group(s) to work on. Within the broad universe further specification of the possible units that could be studied makes up the actual or effective universe. The group(s) selected as focus of study is called the unit of study.

### **Pilot study**

The pilot study is the leading study in your research area. The pilot study leads the researcher to the full-length investigation depending on the size of the population and the amount of time. In other words, a pilot study is an exploratory study done before the actual work starts in the field. It is a pre-testing of your research methods and techniques in order to perfect them. Pilot study will ensure that right questions have been put in the questionnaires for making the fieldwork fruitful. It makes you aware of the difficulties beforehand and provides you an opportunity of modifying your techniques to suit field conditions. Pilot study depends upon the size of the population, the time available and the availability of funds.

### **Sampling**

A universe is often too large for an individual to work upon. A sample is the smaller representation of a larger whole. Sampling allows the researcher to work scientifically and saves time. Analysing large quantities of material is wasteful and an intensive analysis of fewer cases is economical. You need to be cautious and careful while sampling. As explained earlier, the universe refers to a defined population size. Such a universe may be further divided depending on the specifications required. This is known as stature or subpopulation. A stature is a divisible category which depends upon the kind of problem in which one is interested. A sampling frame includes all the elements of a population from which the sample is drawn. The determination of an error while sampling, statistically or qualitatively is known as sampling error. The sample must be a true representative of the universe, as well as being adequate in size (for different kinds of sampling see Units in Blocks 5 and 6 of Book 2).

### **Data collection**

After obtaining some idea and understanding your field and working out your methods and techniques of data collection, you may plan how to

access the field. Quite often social research requires the study of the 'other' community and researchers need to make extensive preparations to gain entry into the society under study. One needs to plan who would facilitate access and how one would contact such persons.

It is also possible to study one's own society. Some scholars (for example see Madan 1975) may not adhere to the idea of studying the 'other' community only. In Box 14.3 we bring you an excerpt from Madan (2004: 203), who 'questioned the requirement of the personal study of an alien culture on the part of every anthropologist'.

#### **Box 14.3 On Studying One's Own Community**

Instead, I emphasised the importance of bridging the gap, or conversely, creating it, between the observer and the observed. I described fieldwork as the feat of 'living intimately with strangers' (Madan 1975). I might have added: 'or strangely with intimates', which was what I had done during my fieldwork among the Pandits of rural Kashmir. The anthropologist studying his own culture I wrote, 'is an insider who takes up the posture of an outsider, by virtue of his training as an anthropologist or a sociologist, and looks at his own culture, hoping to be surprised. If he is, only then may he achieve new understandings' (Madan 1975: 149)

In addition to the question of studying the 'other' or your own community, you need to be clear in mind whether you wish to keep the purpose of research overt or covert. While in covert research, the research remains disguised and the researcher does not bother about convincing the informants, the overt research implies the challenge of convincing the respondents and winning over their trust. You have to adopt a meaningful role in the society under study and be careful about the sensitivities of your informants. Although the access and role of the researcher are negotiated and renegotiated in the field according to the circumstances, thoughtful planning gives you an edge to start the research process with adequate preparation. This is important because firstly, if you identify the right contact persons or the 'gatekeepers' (the prominent persons of the community who have power to grant or deny access to the field) beforehand your entry to the field would not be time consuming and cumbersome. Prior interaction with the 'gatekeepers' would also help you adopt a suitable role in the field. Secondly, if you are already convinced whether to keep your research purpose overt or covert, you can effectively negotiate your access to the field.

There are several ways of collecting your data. Primary data are those, which you as the researcher collect yourself. You consult secondary data from reference sources like the library etc.

Primary data can be collected either through experiment or through survey. There are two main techniques of data collection, namely, intensive fieldwork methods and survey methods. Intensive fieldwork methods include observation, interview, case study, genealogy etc. You



can use one or more methods to collect the data, taking into consideration the nature of investigation, objectives and scope of inquiry, financial resources and time available and degree of accuracy. The data to be collected would need to be adequate and dependable.

### Analysis and report writing

After data collection, you would turn to their analysis. Analysis requires a number of closely related operations such as establishing categories and their application to raw data through coding, tabulation so that you can draw statistical inferences. For coding and tabulation of coded symbols, you need to carefully read the units in Blocks 5 and 6 of Book 2 and Blocks 7 and 8 of Book 3. Tabulation is a part of the technical procedure wherein you are able to put your classified data in the form of tables (see Box 14.4).

#### Box 14.4 Classifying and Coding the Data

Classifications facilitate rapid, accurate and comprehensive searches of stored field material, but a poor classification or careless retrieval may be worse than having none at all. In connection with this, particular attention should be paid to classifications which separate data which are otherwise related. For example, if "name-giving ceremonies" are indexed only under RITUAL, a search intended to assemble all data on KINSHIP may fall short of the mark.

Notes must, in the first instance, be coded so that they can be subsequently located in a mass of material. You will probably wish to refer back to earlier notes quite frequently in the field, to check up on certain matters and test informal hypotheses. At the very least, all sheets should be numbered sequentially.

You need to clearly delineate the form of analysis you wish to eventually adopt. Although often the nature of data collected by you determines the nature of analysis, yet at the stage of opting for certain methods of data collection you would have some idea of the analytical tools you are likely to employ. If you plan to adopt certain computer packages you would need to collect data keeping that in mind. While analysis may depend on the nature of data, you need to be careful to avoid the reverse situation, that is, the pre-determined mode of analysis solely determines the methods of data collection. You may face getting a one-sided picture of the social reality if you were to adopt computer-based methods only, because computer packages offer analysis of a particular dimensions of reality while social research requires as broad a picture of reality as possible. You would be better off collecting data covering as many dimensions of reality as possible. In any case, you need to be quite clear about the mode of analysis to employ to interpret the data collected. Your research design is meant to reflect your theoretical orientation. In this way, you are actually planning every stage of research, from identifying the topic of research and method of data collection to report writing.

Your research design would be complete if you spell out the manner in

which you would present the results of the research. It is an equally important step because you would need to keep in mind the ethics of representation, especially if the research deals with sensitive issues. While you seek to unravel social reality, you cannot play with the privacy of the people who are more than just the subjects of research. It is your responsibility to do justice both to the research and to the people. There is a practice of presenting data with pseudonyms<sup>®</sup> and modification of identities, events and location. You need to always elucidate in your research design the manner in which you would report the results. Presentation of research findings for publication implies their distribution among the public, including those you studied. This is the point when you achieve the aim of making a contribution to the general body of literature related to the subject of your research.

### 14.3 Conclusion

Unit 14 has enumerated the various steps for undertaking a sociological research with the aim of preparing you to carry out one such research. This will be a practical exercise for you to complete as a compulsory requirement of completing MSO 002. You will need to prepare a research design before actually carrying out your mini research project. The Reflection and Action exercise for Unit 14 is that you prepare a research design for your proposed research. You may of course modify it as you come to learn in more detail about the various steps needed in the research process.

#### Reflection and Action 14.1

Prepare a research design of your proposed research after selecting (tentatively) a topic of your interest. The research design needs to incorporate all the steps shown in Figure 14.1.

### Further Reading

Singleton, Jr Royce A. and Bruce C. Straits 1999. *Approaches to Social Research*. Oxford University Press: New York

Sarantakos, S. 1998 (first published in 1993). *Social Research*. Macmillan: London