UNIT 7 TYPES OF RESEARCH DESIGN

Structure

7.1 INTRODUCTION

It is only obvious that the research designs are bound to vary in terms of the kind of research that one proposes to undertake and carry out. In the conventional understanding of Research Methodology, the phrase 'research design' is taken to mean a design that is issued from the tradition of Empirical Theory. Research Design, viewed in this limited sense, refers to an empirical research design. But there is no reason why this should be so and one cannot prepare a research design outside the ambit of this dominant tradition. This calls for an appraisal of different *types* of social research and different ways of preparing their designs. While much of what we discuss in the following continues to be derived from the empirical tradition of doing social research by way of suggesting steps to be taken while preparing a research design, at each step we remind ourselves of the limits and sensitise ourselves to the alternative traditions.

Aims and Objectives

This Unit would enable you to understand

- The definition of research problem
- Clarification of concepts
- Methods of data collection and operationalisation and
- Presentation of findings.

7.2 DEFINING THE RESEARCH PROBLEM

Social research starts from an understanding of the broad topic that subsequently gets translated into a workable research theme. The understanding presupposes, first of all, an

interest on the part of the researcher in working on the topic defined in broadest possible terms and of course some knowledge of the topic developed through either some primary reading of the already existing literature or an exposure to it by way of attending seminars, workshops, talk shows, symposiums and so on and so forth or any combination of them. There is no decisive way to explain how a researcher develops her interest in the topic she in fact feels interested in. It has as much to do with her autobiography as with the social milieu she is part of. It can range from such mundane and accidental factors as the indelible impression that the oratorial skill of her teachers has left on her young mind and the piece of advice that she receives in course of one of her most casual conversations from persons whose advice she enormously counts on to an apparently durable problem that she actually suffers from and with great pain and agony. To repeat as in one of the previous Units, one's personal suffering in the family of in-laws due to the inability of one's parents to pay up dowry may be reason enough for one to undertake a research on the connection between a patriarchal family structure and dowry in a caste society. Accordingly one can prepare dense ethnography of, let us say, 100 families in order to shed light on the connection. Whatever be the factors prompting her to select any particular research topic, a topic becomes a research topic if it is posed in such way that it is clearly grounded in the general social field relevant to it. The connection between patriarchal family structure and dowry will be extremely relevant for us to understand the field of Sociology of Family. We will come back to the question of relevance below.

Once the broad topic is identified, the main challenge is to convert it into a research theme. For all practical purposes, the conversion requires narrowing down of the broad topic into an area with a focus - as clear as possible - and secondly an assessment of the workability of the topic. The narrower the focus is, the sharper it is and the more workable it becomes. Research on a broad topic is likely to spread itself thin with little prospect of novel and exciting findings. Thus to cite an example, insurgency in Asia will be too broad a topic to be worked on. It can be narrowed down to various research themes like the profiles of insurgent leaders, dynamics of insurgent organisations, insurgent ideology, military strategy, decision-making within the insurgent organisations, support base, peace negotiations, interstate nature of the operation of insurgent organisations, the network of various insurgent organisations, the role of civil society and human rights organisations vis-à-vis insurgency etc. One can concentrate on any one or a few of the interrelated themes. Doing research on all of them within a limited time period is next to impossible and might produce results that might not be novel and exciting.

The research theme is then formulated into a research problem. It is important that we make a distinction between let us say, a *social* problem and a *research* problem. Poverty may be one of the burning problems of a society; but this per se does not mean that students will feel sufficiently tempted to work on it, unless and until they are persuaded by the prospect that it is possible for them to articulate it into a research problem. A research problem is one the solution to which calls for the observance of the rules and protocols that govern the respective Social Science disciplines and the ingenuous use of the knowledge already gathered in the discipline. That the society faces a problem that needs immediate solution does not necessarily prompt one to undertake a research on it. Thomas Kuhn argues that doing research resembles 'a puzzle-solving exercise'. Puzzle is not simply a problem – it is a problem that can be resolved only by way of observing a number of given rules and protocols. In that sense, fixing a rubic cube may be considered as a puzzle precisely because the whole business of fixing it requires that we

follow certain rules. For instance, we cannot take out and isolate the cubes from the instrument itself – we are allowed to rotate them in otherwise numerous yet only given number of directions. It would have been easier for us to fix the cubes had we had the opportunity of changing and altering the rules and rewriting them for our convenience.

Thus to cite an instance, a journalist writing on insurgency is free from the obligation of citing her source. She enjoys journalistic privilege. Thus she can scoop out interesting stories about insurgency without referring to her source. A successful journalist's job is to break news. By contrast, a social science researcher is under the abiding obligation to disclose her source at every instance. She may be privy to some very exciting information; but if she is unable to disclose the source, she will not be able to use it. The citations are considered to be essential so that somebody else might cross-check and use the same sources and produce the same results. The standing rules of disclosure and cross-checking eventually might make her findings drab and uninteresting, for she is forced to restrict herself to those information and data that she can quote and that are verifiable. Novelty of findings is not necessarily a virtue of Social Science research.

Transforming the topic primarily imagined in broadest possible terms into a research theme and then further into a research problem is known in Social Science as the *funnel effect*. The transformation does to research what exactly a funnel does while facilitating the pouring of fluids into a bottle with a narrow opening. A young researcher has the temptation of thinking big and defining her research problem on a broad canvass. It is better to control the temptation and be counter-intuitive in this regard.

7.3 KNOWLEDGE OF THE RULES

While any social research is expected to follow the rules and protocols developed in Social Science disciplines, it is of fundamental importance that the researcher familiarises herself with the rules. The task is by no means easy. The rules and protocols are never laid down in the same way as a country's Constitution does. The Constitution, wherever it exists in written form, is supposed to serve as the supreme law of the land that cannot be violated or set aside under all normal circumstances. In the case of Social Science research, the rules exist – not explicitly but only implicitly – in the already existing literature that has hitherto developed on the topic. Since these are implicit, one has to have the skill of deciphering them. Knowledge of rules does not mean that one simply knows the rules that are *out there* – but that one has to decipher and make sense of the rules from the existing literature. One has to find out what is already known about the topic and examine different types of materials, which have been put to use. Proficiency in rules does not necessarily ensure a good research. One who knows the rules of soccer may not be able to play the game with equal efficiency and success. Pierre Bourdieu argues that a good researcher is one who knows the rules but most importantly knows how to escape their 'theorization effect'.

Knowledge of rules requires not only comprehensive familiarity with the existing literature but also its closer review. Review is not summarisation or reproduction of the already acquired knowledge. It implies first of all that the researcher identifies the approaches underlying the literature. An approach is informed by an overriding concept that runs through the entire gamut of publications and writings that fall under it. Thus if one were to review the literature on studies on Indian Foreign Policy, one does well to list out the broad approaches defined by such overriding concepts as 'national interest', 'global and regional balance of power', 'neocolonialism' etc. The task again is not easy, for, the

approaches that seem to mark the literature are identifiable only albeit with a varying degree of clarity and precision. Given that Social Science is only an inexact Science approaches more often than not overlap into each other. But it is important that a researcher becomes capable of identifying the approaches on the basis of an overriding concept, notwithstanding these overlaps.

Secondly, the researcher has also to find out the gaps while reviewing the literature. The enterprise of finding out the gaps can be of two kinds: One, the approach may just not be adequate to take into account, cover, explain or predict certain kinds of empirical facts, which have already been observed. In other words, there are certain kinds of empirical facts, which are very much a part of the observed or observable reality that the approach actually fails in taking into account, explain or predict. We call them the *wicked* facts and the inadequacy at issue here may be described as empirical inadequacy. Merely underling these points of inadequacy does not necessarily lead to the instant rejection of the approach lock, stock and barrel - unless these facts and empirical realities through their serial accumulation bring into existence even in a rudimentary way a new approach. While these wicked facts have the potential of articulating a new approach, one or two such facts do not bring into existence a new approach. Besides, the new approach has the potential of replacing the old one, but in the history of Social Science, approaches are seldom replaced in any neat and precise way. The writings of Aristotle and Plato – notwithstanding their old age – do not lose their relevance now. Their writings figure prominently in contemporary debates particularly on Social Philosophy and Political Theory.

7.4 CLARIFICATION OF CONCEPTS

One is required to inventory the concepts that are likely to be used in any particular research work. Each concept acquires its meaning within a particular context. Taken out of the context, the concept loses its meaning or even acquires a meaning that might be irrelevant to the context of research. The concepts must therefore be defined in the precise way in which they are or are likely to be used. One has to clarify the precise meanings one attaches to these concepts at the very beginning of the research work. One does not use the concept of power in the same sense in which one makes such statements as 'the USA has become the most *power*ful nation on earth' and 'the Chipko women firmly hugging the trees in the Kumaon hills and refusing to let the contractors' men indiscriminately fell the trees for the preservation of forest and their own survival proved to be extremely *power*ful'. In the former, power is used in the material sense – military power, economic power, diplomatic power so on and so forth. But, in the second case, power essentially refers to moral power in the face of material power. The problem with Social Science research lies in the fact that here every concept carries multiple meanings and unless one specifies the meaning in which one prefers to use it at the very outset, there is the real danger that one might flip from one meaning to another and create confusion in the process.

Besides, it is imperative on the part of the researcher to establish the connections amongst the concepts that she deploys in her research work. Concepts do not exist in isolation and a research work is primarily an endeavour at establishing certain connections and linkages amongst the concepts or to reexamine the already established ones in the light of the newer facts that have been gathered. Each concept is therefore a part of an inventory that a researcher presses into service for her work. Thus, poverty, hunger and

starvation are so closely related concepts that more often these are used as synonyms and the finer distinctions that otherwise exist between them are conveniently forgotten.

Clarification of concepts in a large measure depends on our ability to render them measurable. In simple terms, an appropriate way to measure concepts must be found or devised. The general question of measurement should be discussed so that it is clear that the potential problems in measuring the concepts have been thoroughly thought out. In the words of Therese Baker: "[Measurements] include two critical issues: *validity*, that is, whether the measurement of a concept in fact produces a result that truly represents what the concept is supposed to mean; and *reliability*, that is, whether the measurement would lead to consistent enough outcomes, were it to be repeated, that one could have some confidence in the results."

Social Science concepts are hardly measurable in the same sense, in which Physical Science are. Yet following Baker it is possible to identify two main criteria of measurement: validity and reliability. We may continue with the same instance for our convenience. Social Science in India became alive to the problem of poverty only in the late 1960s although all of us know that poverty has been an age-old problem. Initially poverty was sought to be understood in terms of low or no income. In other words, income was considered as the index of poverty. This creates a problem for us particularly when we seek to assess the extent of poverty against starvation and deaths caused by starvation. The rationale is that people with low or no income will have reduced or no purchasing power at all and will not be able to purchase foodstuff and cereals necessary to offset starvation. But the problem arises because in a country like India people having low or no income do not necessarily starve. The high figures of low income do not match with the *relatively* low figures of starvation and starvation deaths – assuming that all cases of starvation and starvation deaths are meticulously reported. One way to explain this apparent paradox is to understand that there are many societal factors that interfere with the presumably linear correlation between poverty and starvation. People with low or no income bank upon common property resources and somehow survive. The *adivasis* may have access to forests and forest resources. Besides, we can also make the assumption that people of low or no income survive by way of depending on other peoples' charity. Then how is poverty to be understood and measured? Assuming that poverty has no necessary correlation to income, it is suggested that poverty has to do with a certain level of consumption of nutrition and calorie intake. Again, the consumption and intake level is bound to vary from one society to another. The calorie requirement will be more in cold areas than in warmer areas. But, it is possible to specify the variation levels in more or less precise terms.

The second criterion of measurement, as pointed out by Baker, is reliability. Let us take an example. The pace at which some States in the Indian Union were declaring their districts 'fully literate' one after another about a decade back was too rapid to be confident about. While the importance of the mission of full literacy can never be exaggerated, the pace of declaration, as subsequent researches bear out, was far more furious than the ground reality. It was found, for instance, that many people who were counted as literate in the full literacy campaign for the districts were barely able to sign their names without knowing the full set of alphabets. They were just taught to reproduce their signatures. Similarly it was felt that in the absence of any repeat literacy campaign, many of them managed to forget what they had learnt. In other words, the so-called full literacy is no guarantee for *sustainable* full literacy. In sum, the results of full literacy

campaign were too impressive to be believed and as the subsequent researches point out, could not prove to be sustainable.

7.5 METHODS OF DATA COLLECTION, OPERATIONALISATION, PROCESSING AND ANALYSIS

A number of studies have been conducted highlighting three primary methods of data collection in Social Sciences: survey method based on questionnaires or interviews, experiments in natural or laboratory settings and field methods using different types of observation techniques.

As we list out the methods in broad terms, we feel it expedient to sound at least two caveats before we begin to dwell on them. One, there is no a priori way to privilege one method over another. For, each of these has its relevance to the particular field that a researcher proposes to work on and the nature of study that she is interested in pursuing. It is important that the difficulty one faces while collecting the data does not become so insurmountable that it halts the process of data collection in the middle and disrupt the research. Sometimes the difficulties force the researcher to abandon her research in a huff. This is why pretesting is so valuable, because it helps us in finding and addressing potential problems before they enter our study and cause bigger problems in the future.

Two, the methods suggested above are not mutually exclusive so much so that one does not necessarily rule out the other. In fact, most of the methods are complementary and it is possible for us to simultaneously deploy them. The quality of research improves if data are collected following multiple methods.

Survey is the method of collecting data from relevant individuals and groups by way of interviewing them. There are various ways of interviewing them. Broadly, we make a distinction between *structured* and *unstructured* interviews. One can interview them on the basis of a written questionnaire. But interviews may be unstructured. Or as it happens in some cases, interviews are a combination of them. Although the interviewer carries a written questionnaire, she is free to change and improvise on it depending on the course and progress of the interview. Framing an interview schedule requires special skill and for all practical purposes implies tight-roping for the researcher. While she will have to have the eagle's eye on her research problem and organise the schedule accordingly, she will do well to keep the psyche of the interviewee in her mind. The interviewee too must be left with a sense of self-fulfillment at the end of the interview. She does not have much to gain from the interview unless she is able to discover something in it as interesting. As a result, things which she intends to narrate to the interviewer with absolute eagerness may be irrelevant to the research problem. But one has to listen to it patiently and introspect why things which she considers as relevant do not turn out to be relevant to the way research problem has been formulated. It might call for reformulating the research problem – even refocusing the research objectives. Self-introspection is the prerequisite of any form of social research.

The protocols of survey research are often wrongly assumed to be universal. Research Methodology as it has developed in the West emphasises the researcher's responsibility of running through the protocols with the interviewee before she actually begins it. In many of the Western Universities, there are functionaries specially appointed to monitor

whether transparency in the observance of these protocols was ensured. There are provisions of punitive measures if the protocols are not observed and transparency is not ensured. An interviewee, according to this line of argument, is not obliged to give the interview if she finds the protocols or any of them objectionable. If this is one end of the spectrum, at the other end, there are examples of dishonest researchers who take advantage of people's illiteracy and poverty and make false promises for eliciting information from them. In the Indian context, it is likely that the relationship between the interviewer and the interviewee does not begin and end with the interview – it implies more than that. There are many instances where the relationship is of more social nature and precedes and survives the conduct of the interview.

Experimental method resembles the way experiments are conducted within a laboratory. A laboratory provides one with the ideal conditions for controlling what is otherwise construed as 'given' and 'independent variable'. Viewed in this light, experimental method has very limited applicability to Social Science. For, human beings being irreducibly social are not amenable to laboratory conditions. The human society is far from being a laboratory where every variable can be controlled and subjected to desirable conditions. The innately social nature of human beings makes it difficult for us to try out the experimental method. Yet, in some fields of Social Science particularly in Psychology, experimental methods have made much headway. Let us cite an example. A man is isolated from his social surroundings and is kept confined to a closed, underground room without any exposure whatsoever to the outside world – excepting the food that is supplied to him for his wherewithal. As he spends days and months at a stretch inside this closed room without any exposure to the outside world and is unable to see sunlight, it is discovered that he loses, among other things, his sense of time. It is through the experimental method that one learns that this is one of the changes - that is done to a man who gets isolated from social surroundings. Such experiments are not rare in Psychology.

Field method presupposes visit to the field and depends on deep observation of it. Early anthropologists like Evans-Pritchard, Radcliffe Brown or Malinowski started the tradition of paying long visits to the aboriginal societies in Asia, Australia and Africa and gathering knowledge about them as extensively as possible. The tradition is followed even by present-day anthropologists. There are two rather mutually contradictory perspectives on field method. On the one hand, a section of Social Scientists makes a plea for observing these societies by way of participating in them. The method is widely known as 'participant observation'. It is built on the assumption that one cannot have access to the knowledge of how these societies function, their kinship structures, rituals and social relations etc unless one becomes part of them. On the other hand, scholars like Dumont and others believe that it is not always easy for an insider to chronicle the lived experience. One who is too close to the society that one proposes to work on cannot appreciate features that are unique to it and mark it off from others. Why do Western anthropologists visit such societies like that in India – Dumont asks - unless they are capable of discovering their distinctive features? The works of Dumont and his colleagues have successfully drawn our attention to the distinctive organising principles that lie at the root of Indian society. Dumont's view sparked off a raging debate in Indian Sociology. The debate widely known as 'the Inside/Outside Debate on Indian Sociology' continues till today and figures prominently in its pages since the journal entitled *Contributions to Indian Sociology* was founded by Louis Dumont in Paris in 1959.

Once the data are collected, they must be processed and put into a form which will enable them to be analysed. If they are quantifiable data as it is likely in cases of survey and experimental methods, we usually have to prepare them for feeding into the computer and obtain relevant results. If they are field notes, they must be organised, classified and categorised. Alongside processing, how we plan to analyse the data must be thought through carefully while the study is being designed. It is true that once the data are collected, there may be some changes in these plans. Nevertheless, it is better to have a strategy that can be adapted than to end up with piles of data for which we have no organised plan. There are numerous analytic tools (like bivariate and multivariate analysis, frequency distribution etc) for studying quantitative data. Recent developments in Research Methodology seek to focus more on what the survey data could not bring out – what the respondents did not or even refused to share with the researcher – their silences and refusals. Even silence is understood to have its meaning. Insofar as field data are concerned, there are innovative *strategies* for reading and making sense of them.

7.6 SAMPLING THE SUBJECTS

The data that one collects can be of two types: census and sampling. Like in censuses conducted by the Government, everyone comes under the scope of study and not a single individual is left out of it. Censuses in India conducted every ten years, for instance, theoretically cover one and all so much so that it becomes possible for us to say in precise terms the demographic composition, the age differential and the exact number of inter-state migrants etc. and many more that come under the census count. For an individual researcher, there is a limit to what she can take into account. One can conduct a study on 20 households or even 500 households – but cannot conduct a study that covers all the households of even a remoter district town of India. The researcher has to select in such a way that she can arrive at findings that will be accurate.

The selection process for deciding what or whom one will study rests on a large body of thought about the nature of sampling. Sample plans may be very complex or quite straightforward and one merely selects a sample of subjects who seem to fulfill the needs of one's study. We call it *non-probability* sample. One can, for instance, spend a whole day in a local police station and faithfully take down the cases that are reported on that single day. This is not a *probability* sample because it is possible that on that particular day all the cases reported were so unique that these did not bear any similarity with the crime record maintained by it. Obviously the findings from a unique day's record are bound to be different and will not offer any key to the understanding of the crime profile in the locality over which the station has its jurisdiction. For many studies, such a non-probability sample is sufficient; and for some it is the best that can be achieved. Whatever the design of one's sample, it needs to be explained in detail in one's proposal. It should be so precise that someone else could generate a similar sample by following one's procedures.

On the other hand, a probability sample is expected to reflect the relevant distributions that characterise the population group under study. An exit poll, for instance, will have no meaning if the sample over which the poll is conducted reflects, the age, gender or caste differential, the variations in terms of class, education and income so on and so forth. If a poll is conducted exclusively on the Hindus in a constituency dominated overwhelmingly by the minorities in India, it is likely to tell little - if at all – about minority electoral behaviour. The sample is expected to offer high probability findings provided it is compatible with the relative distribution of relevant factors.

7.7 PRESENTATION OF FINDINGS

Research is more than mere data collection. The data for an entire study may be collected. But the research is not complete unless the results of the study are written up. Most social research projects become the basis of articles, books, chapters in books, reports etc. A research must be designed in a way that it produces findings that are sought to be elicited through it and will have wider value for Social Science as a whole.

Accordingly, the contribution of a research work is to be understood with reference to its *purpose* and *value*. By showing that we have devised a plan of work that looks plausible and seems feasible, we reinforce the sense that the purpose will be achieved. But a social research may serve purposes other than what it fixes for itself at the outset and can bring interesting findings. A research on immigration from neighbouring countries may reveal how climate change and global warming result in the rise of sea level and subsidence of the landmass and loss of cultivability. All this in turn creates resource crisis which compel people to leave their countries. Although clearly the objective of research was to disentangle the crisis of immigration, it brought us face to face with another and more severe global crisis. Besides, the research is to be designed in a way in order to serve its purpose. The value of the project lies not only in what it alone produces, but also in how it may add to or challenges other research in the area.

7.8 SUMMARY

While a good research work is predicated on the preparation of a good research design, there is no golden rule to be followed for the preparation of a good research design. While most of our understanding of research design continues to be steeped in Empirical Theory tradition, the above discussion seeks to dispel that misconception. Thus at every instance, we have tried to find out how research can be conducted outside the given box of empirical tradition alongside that particular tradition. The choice, as we have pointed out, is not mutually exclusive.

7.9 TERMINAL QUESTIONS

1. Define research problem and discuss how literature review enables one to formulate the research problem.
2. Discuss the methods of data collection in Social Science research. Are these methods mutually exclusive? Give reasons for your answer.
3. Define Sample and find out its main points of distinction from Census.
4. Write short notes on the following:
   a. Non-probability Sampling
   b. Puzzle-Solving Exercise
   c. Value of Social Research

SUGGESTED READINGS

1. Karl Popper., *Conjectures and Refutations: The Growth of Scientific Knowledge,* Routledge and Kegan Paul, London, 1963.

2. Thomas S. Kuhn., *The Structure of Scientific Revolutions,* University of Chicago Press, Chicago, 1962.

3. Therese L. Baker., *Doing Social Research*, McGraw-Hill, New York, 1994.

4. Pierre Bourdieu., *The Logic of Practice*, trans. by Richard Nice, Polity, Cambridge, 1997.