

# 2

## THE RESEARCH PROCESS: A QUICK GLANCE

In this chapter you will learn about

- The eight-step model for carrying out research
- The different phases of the process

Phase A: Deciding what to research

- Step I: Formulating a research problem

Phase B: Planning a research study

- Step II: Conceptualising a research design
- Step III: Constructing an instrument for data collection
- Step IV: Selecting a sample
- Step V: Writing a research proposal

Phase C: Conducting a research study

- Step VI: Collecting data
- Step VII: Processing and displaying data
- Step VIII: Writing a research report



## Keywords

data, data display,  
data processing,  
empiricism, hypotheses,  
interview schedule,  
non-probability sample,  
primary data,  
probability sample,

qualitative research,  
questionnaire, rationalism,  
reliability, research design,  
research instrument,  
research objectives,  
research problem,  
research proposal,

sample, sample size,  
sampling design,  
secondary data,  
study design,  
unstructured interview,  
validity,  
variables.

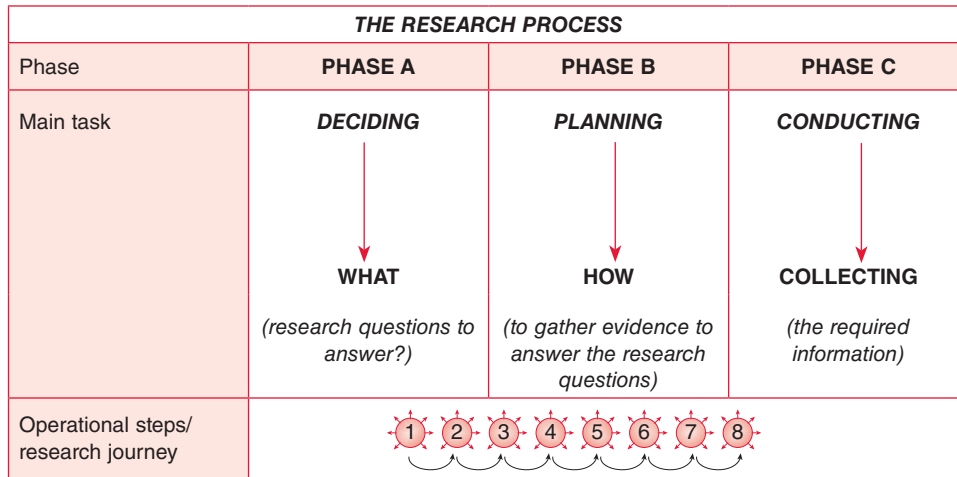
**At the end of this chapter, you should have an understanding of**

- The research process and its operational steps
- What it involves to undertake a research study
- The relationship between the research process and the theoretical knowledge needed

## The research process: an eight-step model

Research methodology and methods are taught in several ways in many academic disciplines at various levels by people committed to a variety of research paradigms. Though paradigms vary in their contents and substance, their broad approach to enquiry, in the author's opinion, is similar. Such ideas have also been expressed by Festinger and Katz, who in the foreword to their book *Research Methods in Behavioral Sciences* say: 'Although the basic logic of scientific methodology is the same in all fields, its specific techniques and approaches will vary, depending upon the subject matter' (1966: vi). Therefore, the model developed here is generic in nature and can be applied to a number of disciplines in the social sciences. It is based upon a practical and step-by-step approach to research enquiry that at each step provides a smorgasbord of methods, models and procedures to choose from.

Broadly, a research process is very similar to undertaking a journey. Suppose you want to go out for a drive. Before you start, you must decide where you want to go and then which route to take. If you know the route, you do not need to consult a map, but, if you do not know the route, then you need to use one. Your problem is compounded if there is more than one route. You need to decide which one to take. Similarly, for a research journey there are also two important decisions to make. The first is to decide *what you want to find out about* or, in other words, what *research questions* you want to find answers to. Having decided upon your research questions or research problems, you then need to decide *how to go about finding their answers*. The path to finding answers to your research questions constitutes research methodology. Just as there are signposts along the way as you travel to your destination, so there are practical steps through which you must pass on your research journey

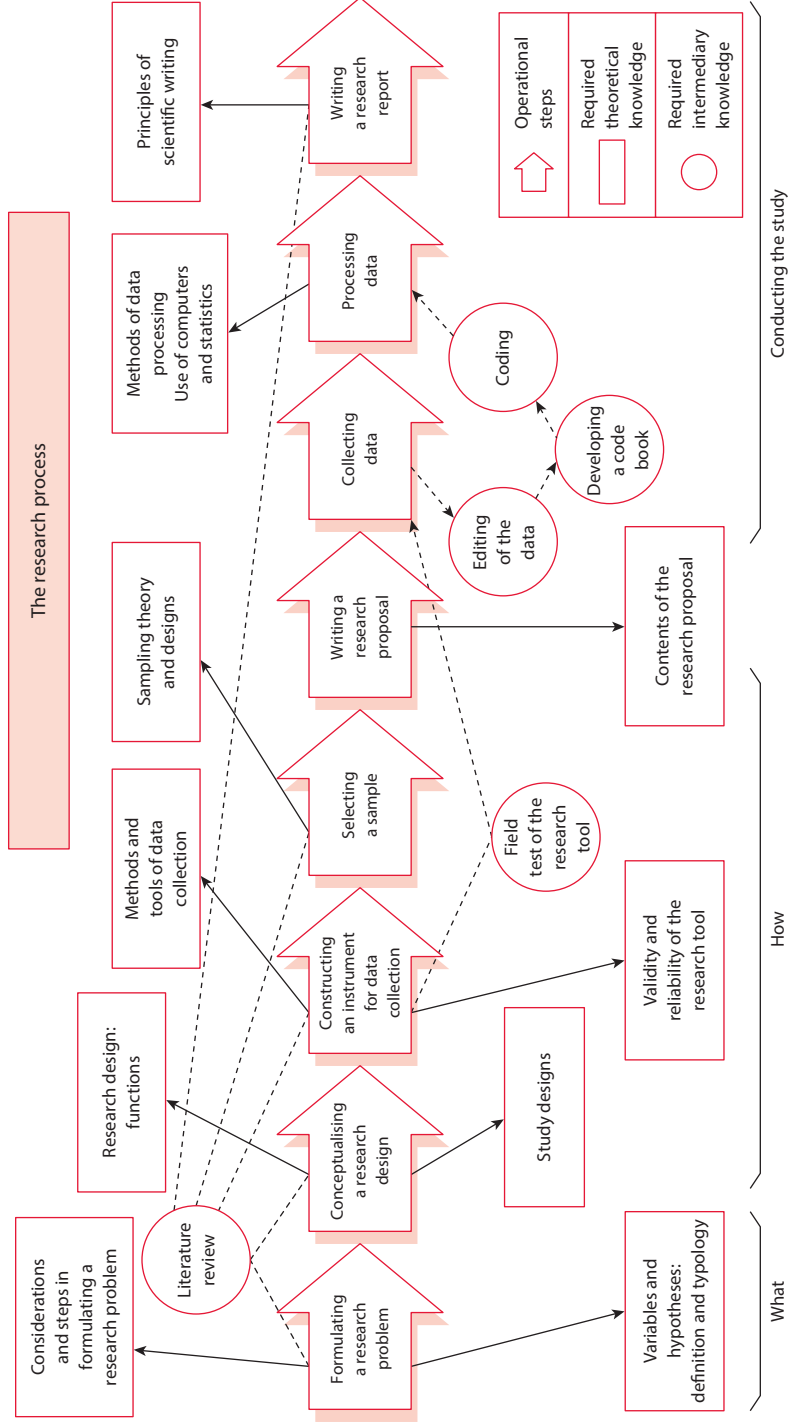


**FIGURE 2.1** The research journey – touch each post and select methods and procedures appropriate for your journey

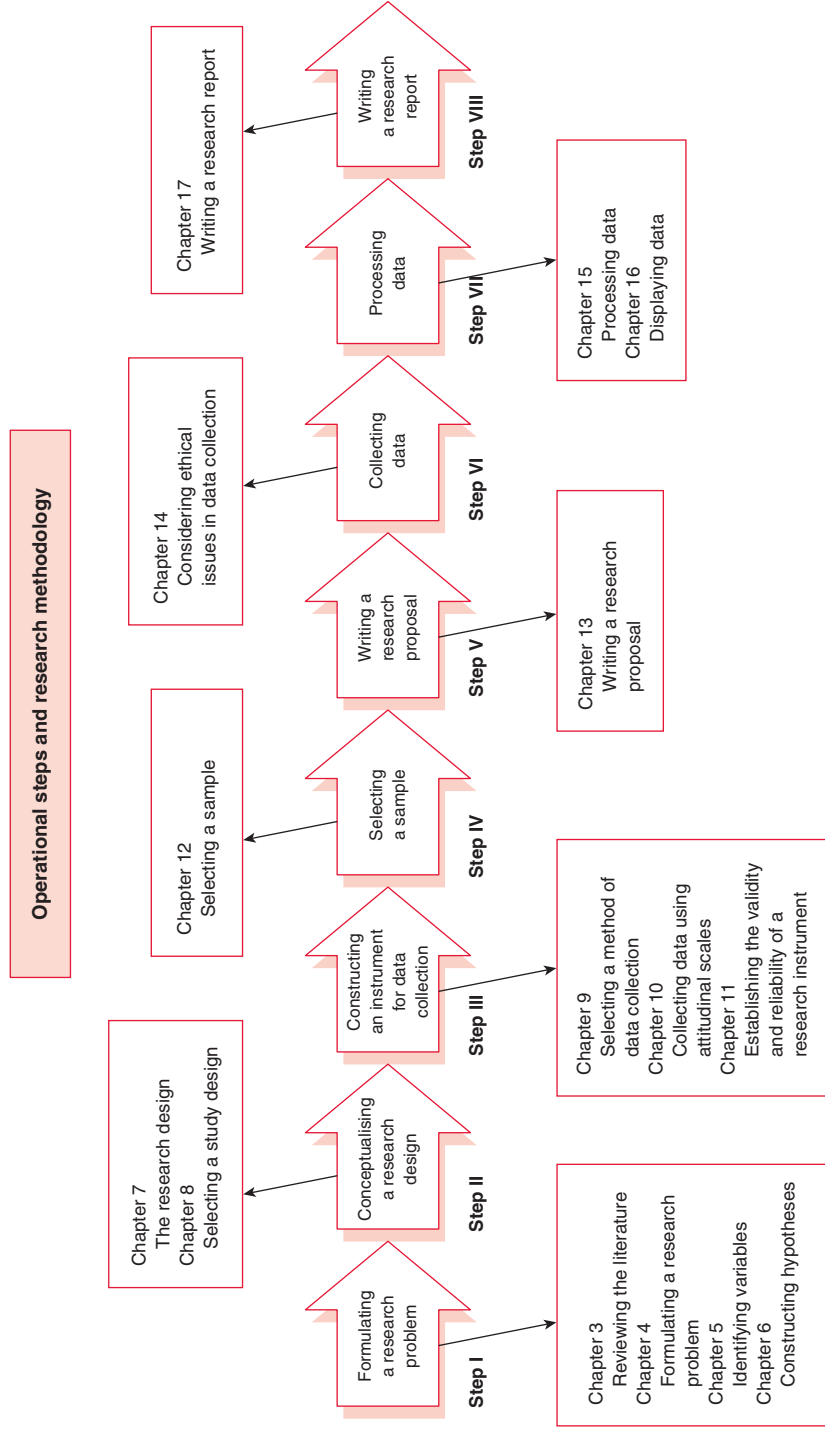
in order to find the answers to your research questions (Figure 2.1). The sequence of these steps is not fixed, and with experience you can change it. At each operational step in the research process you are required to choose from a multiplicity of methods, procedures and models of research methodology which will help you best achieve your **research objectives**. This is where your knowledge base of research methodology plays a crucial role.

Quantitative and qualitative research methodologies differ both in their underpinning philosophy and, to some extent, in the methods, models and procedures used. Though the research process is broadly the same in both, quantitative and qualitative research are differentiated in terms of the methods of data collection, the procedures adopted for data processing and analysis, and the style of communication of the findings. For example, if your research problem lends itself to a qualitative mode of enquiry, you are more likely to use the *unstructured interview* or *observation* as your method of data collection. When analysing data in qualitative research, you go through the process of identifying themes and describing what you have found out during your interviews or observation rather than subjecting your data to statistical procedures. The mixed methods approach to a research enquiry basically uses methods and procedures of quantitative and/or qualitative approaches. Table 1.2 in chapter 1 compares the qualitative, quantitative and mixed methods approaches to research from different perspectives.

Since, at a number of steps of the research process, the choice of methods and procedures is influenced by the quantitative–qualitative distinction, the methods and procedures discussed in some of the chapters in this book are dealt with separately under qualitative and quantitative sections of the methodology, even though the author does not attach importance to this distinction. The author has tried to minimise this distinction as a number of methods and procedures are applicable to



**Figure 2.2** The research process



**Figure 2.3** The chapters in the book in relation to the operational steps

both. Also note that this book is for beginners, it does not cover extensively each method, model and procedure. For a deeper understanding of a method or procedure relating to either, you may wish to consult other books identified in the text or in the Bibliography. You can also visit the companion website for the book at xxx where additional information is available.

The proposed research model is shown in Figure 2.2. The tasks identified by *arrows* are the operational steps you need to follow in order to conduct a study, whether quantitative, qualitative or using the mixed methods approach. Topics identified in *rectangles* are the required theoretical knowledge needed to carry out these steps. The tasks identified in *circles* are the intermediary steps that you need to complete to go from one step to another. It is important for a beginner to work through these steps in the proposed sequence, though, as already stated, once you know the route for your research journey you will not need to follow the sequence.

In this book the theoretical knowledge required is written around each operational step and follows the same sequential progression as is needed when actually undertaking a research investigation. For each operational step, the required theoretical knowledge is further organised, in different chapters, around the operational step to which, in the author's opinion, it is most logically related (Figure 2.3). Again, for a beginner, it is important to study this diagram to relate the theoretical knowledge to the operational steps.

The following sections of this chapter provide a quick glance at the whole process to acquaint you with the various tasks you need to undertake to carry out your study, thus giving you some idea of what the research journey involves.

## A: Deciding what to research

### Step 1: Formulating a research problem

Formulating a research problem is the first and most important step in the research process. A research problem identifies your destination: it should tell you, your research supervisor and your readers *what* you intend to research. The more specific and clearer you are the better, as everything that follows in the research process – study design, measurement procedures, sampling strategy, frame of analysis and the style of writing of your dissertation or report – is greatly influenced by the way in which you formulate your research problem. Hence, you should examine it thoroughly, carefully and critically. The main function of formulating a research problem is to decide what you want to find out about. Chapter 4 deals in detail with various aspects of formulating a research problem.

It is extremely important to evaluate the research problem in the light of the financial resources at your disposal, the time available, and your own and your research supervisor's expertise and knowledge in the field of study. It is equally important to identify any gaps in your knowledge of relevant disciplines, such as statistics required for analysis. Also ask yourself whether you have sufficient knowledge about computers and software if you plan to use them.

## B: Planning how to conduct the study

### Step II: Conceptualising a research design

An extremely important feature of research is the use of appropriate methods. Research involves systematic, controlled, valid and rigorous exploration and description of what is not known, and establishment of associations and causation that permit the accurate prediction of outcomes under a given set of conditions. It also involves identifying gaps in knowledge, verification of what is already known and identification of past errors and limitations. The strength of *what* you find largely rests on *how* it was found.

The main function of a research design is to decide, describe, justify and explain *how* you will find answers to your research questions. The research design sets out the specific details of your enquiry. A research design should include the following: the study design per se and the logistical arrangements that you propose to undertake, the measurement procedures, the sampling strategy, the frame of analysis and the time-frame. (Do not confuse the study design and research design. The study design is just one part of the research design. The research design also includes other parts which constitute the research process.)

For any investigation, the selection of an appropriate **research design** is crucial in enabling you to arrive at valid findings, comparisons and conclusions. A faulty design results in misleading findings and is therefore tantamount to wasting human and financial resources. In scientific circles, the strength of an empirical investigation is primarily evaluated in the light of the research design adopted. When selecting a research design it is important to ensure that it is *valid*, *workable* and *manageable*. Chapter 7 provides details about the research design most commonly used in quantitative and qualitative research.

There is an enormous variety of **study designs** (Chapter 8) and you need to be acquainted with some of the most common ones both in quantitative and qualitative approaches. The chapter does not separately describe study designs for the mixed methods approach as it primarily uses those which are either quantitative or qualitative. Select or develop the design that is most suited to your study. You must have strong reasons for selecting a particular design; you must be able to justify your selection; and you should be aware of its strengths, weaknesses and limitations. In addition, you will need to explain the logistical details needed to implement the suggested design.

### Step III: Constructing an instrument for data collection

Anything that becomes a means of collecting information for your study is called a 'research tool' or a 'research instrument', for example interview schedules, questionnaires, notes on field observations, field diaries, information collected from secondary notes, interview guides.

The construction of a research instrument is the first 'practical' step in carrying out a study. You will need to decide how you are going to collect data

for the proposed study and then construct a research instrument for data collection. Chapter 9 details the various methods of data collection for qualitative and quantitative studies and the process of developing a research instrument.

If you are planning to collect data specifically for your study (primary data), you need either to construct a research instrument or to select one that has already been constructed. Chapter 10 deals with methods for collecting data using attitudinal scales. The concepts of validity and reliability in relation to a research instrument are discussed in Chapter 11.

If you are using secondary data (information already collected for other purposes), you will need to identify what information is needed and then develop a form to extract the required data. In order to determine what information is required, you need to go through the same process as for primary data.

Field testing (or pre-testing) a research tool is an integral part of instrument construction. As a rule, the pre-test of a research instrument should not be carried out on the sample of your study population but on a similar population which you are not proposing to study. This is covered in greater detail in Chapter 9.

If you are planning to use a computer for data analysis, you may wish to provide space for coding the data on the research instrument. This is explained in Chapter 15.

## Step IV: Selecting a sample

The accuracy of your findings largely depends upon the way you select your sample. The basic objective of any sampling design is to minimise, within the limitation of cost, the gap between the values obtained from your sample and those prevalent in the study population.

The underlying premise in sampling is that a relatively small number of units, if selected so that they genuinely represent the study population, can provide – with a sufficiently high degree of probability – a fairly true reflection of the sampling population that is being studied.

When selecting a sample you should attempt to achieve two key aims of sampling: (i) the avoidance of **bias** in the selection of a sample; and (ii) the attainment of maximum precision for a given outlay of resources.

There are three categories of sampling design (Chapter 12): random/probability sampling designs, non-random/non-probability sampling designs, and the ‘mixed’ sampling design.

There are several sampling strategies within the first two categories. You need to be acquainted with these sampling designs – the strengths and weaknesses of each and the situations in which they can or cannot be applied – in order to select the one most appropriate for your study. The type of sampling strategy you use will influence your ability to make generalisations from the sample findings about the study population, and the type of statistical tests you can apply to the data.



## Step V: Writing a research proposal

Having done all the preparatory work, the next step is to put everything together in a way that provides adequate information about your research study, for your research supervisor and others. This overall plan, called a **research proposal**, tells the reader about your research problem and how you are planning to investigate it. Broadly, a research proposal's main function is to detail the operational plan for obtaining answers to your research questions. In doing so it ensures – and reassures the reader of – the validity of the methodology to obtain answers accurately and objectively.

Universities and other institutions may have differing requirements regarding the style and content of a research proposal, but the majority of institutions would require most of what is set out here. Requirements may also vary within an institution, from discipline to discipline or from supervisor to supervisor. However, the guidelines set out in Chapter 13 provide a framework which will be acceptable to most.

A research proposal must tell you, your research supervisor and a reviewer the following information about your study:

- *what* you are proposing to do;
- *how* you plan to proceed;
- *why* you selected the proposed strategy.

Therefore it should contain the following information about your study (Chapter 13):

- a statement of its *objectives*;
- a list of *hypotheses*, if you are testing any;
- the *study design* you are proposing to use;
- the *setting* for the study;
- the research *instrument(s)* you are planning to use;
- the *sample size* and *sampling design*;
- the *data processing* procedures;
- an outline of the proposed *chapters* for the report;
- the study's *problems* and *limitations*; and
- the proposed *time-frame*.

## C: Conducting a research study

### Step VI: Collecting data

Having formulated a research problem, developed a study design, constructed a research instrument and selected a sample, you then collect the data from which you will draw inferences and conclusions for your study.

Many methods could be used to gather the required information. As a part of the research design, you decided upon the procedure you wanted to adopt to collect your data. In this phase *you actually collect the data*. For example, depending

upon your plans, you might commence interviews, mail out a questionnaire, conduct nominal/focus group discussions or make observations. Collecting data through any one of the methods may involve some ethical issues, which are discussed in Chapter 14.

### Step VII: Processing and displaying data

The way you analyse the information you collected largely depends upon two things: the type of information (descriptive, quantitative, qualitative or attitudinal); and the way you want to communicate your findings to your readers. Chapter 15 describes different ways of analysing quantitative and qualitative data and Chapter 16 details various methods of displaying the data that has been analysed.

In addition to the qualitative–quantitative distinction, it is important for data analysis that you consider whether the data is to be analysed manually or by a computer.

If your study is purely descriptive, you can write your dissertation/report on the basis of your field notes, manually analyse the contents of your notes (content analysis), or use a computer program such as NVivo for this purpose.

If you want quantitative analysis, it is also necessary to decide upon the type of analysis required (i.e. frequency distributions, cross-tabulations or other statistical procedures, such as regression analysis, factor analysis and analysis of variance) and how it should be presented. You will also need to identify the variables to be subjected to these statistical procedures.

### Step VIII: Writing a research report

There are two broad categories of reports: quantitative and qualitative. As mentioned earlier, the distinction is more academic than real as in most studies you need to combine quantitative and qualitative skills. Nevertheless, there are some purely qualitative and some purely quantitative studies.

Writing the report is the last and, for many, the most difficult step of the research process. This report tells the world what you have done, what you have discovered and what conclusions you have drawn from your findings. If you are clear about the whole process, you will also be clear about the way you want to write your report. Your report should be written in an academic style and be divided into different chapters and/or sections based upon the main themes of your study. Chapter 17 suggests some ways of writing a research report.

## Summary

This chapter has provided an overview of the research process, which has been broken down into three phases (A, B, C) and eight steps, the details of which are covered in the remainder of this book. At each step the research model provides a

variety of methods, models, techniques and procedures so that you can select the one most appropriate for your study. It is like a buffet party with eight tables, each with different dishes made from similar ingredients. You go to all eight tables and select the dish that you like the most from each table. The main difference between the model and this example is that in the model you select what is most appropriate for your study and not what you like the most. For a beginner it is important to go through all the steps, although perhaps not in the same sequence. With experience you can take a number of shortcuts.

The eight steps cover the complete spectrum of a research endeavour, from problem formulation through to writing a research report. The steps are operational in nature, following a logical sequence, and detailing the various methods and procedures in a simple step-by-step manner.

#### FOR YOU TO THINK ABOUT

- Refamiliarise yourself with the keywords listed at the beginning of this chapter, and if you are uncertain about the meaning or application of any of them revisit them in the chapter before moving on.
- Reflecting on the differences between quantitative and qualitative research (as outlined in Table 1.2), determine which approach you are more inclined to follow and why. To what extent does this reflect your own underpinning philosophy?

Now, as you have gone through the chapter, try answering the following questions:

- What is the first step in the research process outlined in this chapter? And the last step?
- Critically examine the applicability of this research process to your situation.
- Think about the applicability of the proposed research process for quantitative, qualitative and mixed-methods studies. Are there any differences in how you might approach the eight-step model based on your understanding of the different research approaches, objectives and paradigms in Chapter 1?

