

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.

## **Phase II: planning a research study**

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### **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 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. (You should not be confused between study design and research design. Note that the study design is one part of the research design. It is the design of the study itself, whereas 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 and you need to be acquainted with some of the most common ones. [Chapter 8](#) explains some of these designs. 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 observation forms, interview schedules, questionnaires and 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, described above.

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 in a manner 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 the avoidance of bias in the selection of a sample; and 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 ‘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 a reader about your research problem and how you are planning to investigate. 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 readers 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 the *objectives* of the study;
- a list of *hypotheses*, if you are testing any;
- the *study design* you are proposing to use;
- the *setting* for your study;
- the research *instrument(s)* you are planning to use;
- information on *sample size* and *sampling design*;
- information on *data processing* procedures;
- an outline of the proposed *chapters* for the report;
- the study's *problems* and *limitations*; and
- the proposed *time-frame*.

## **Phase III: conducting a research study**

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### **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 analysed data.

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 NUD\*IST N6, NVivo or Ethnograph for this purpose.

If you want quantitative analysis, it is also necessary to decide upon the type of analysis required (i.e. frequency distribution, 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 solely qualitative and some solely quantitative studies.

Writing the report is the last and, for many, the most difficult step of the research process. This report informs 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 of the ways of writing a research report.

### Summary

This chapter has provided an overview of the research process, which has been broken down into eight steps, the details of which are covered in the remainder of this book. At each step the research model provides a smorgasbord of methods, models, techniques and procedures so 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 total 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 these in the chapter before moving on.
- Reflecting on the differences between quantitative and qualitative research (as outlined in [Table 2.1](#)), determine which approach you are more inclined to follow. To what extent does this reflect your own underpinning philosophy?
- Use the information provided in [Table 2.1](#) to map the main differences between quantitative and qualitative research at each step in the eight-step model.