

Preparing Research Proposals and Research Designs

A research proposal is intended to convince the reader that the proposed work is significant, relevant, and interesting; that the design of the study is sound; and that the researcher is capable of successfully conducting the study. (Marshall and Rossman 1995)

Introduction

The ultimate purpose in exploring the issues and processes covered in the following chapters is to facilitate the preparation of a detailed research design. In order to understand these processes, I shall begin by setting out some guidelines for the structure and content of both a research proposal and a research design.

It is first necessary to distinguish between *research proposals* and *research designs*. While there is considerable overlap between their requirements, they are intended for different audiences. There is also likely to be a sequence to their development; the latter can provide a basis for the former.

The *research proposal* may be used for:

- making public presentations and receiving feedback;
- obtaining official approval from the appropriate university authorities for the project to proceed, including the endorsement of a human ethics committee; and
- applying for research grants.

The *research design* is a more technical document than the research proposal. The decisions that need to be made at the beginning of the research project, or soon after some exploratory work has been completed, are stated, justified, related and evaluated. The aim is to:

- make these decisions explicit;
- spell out why they have been made;
- ensure that they are consistent with each other; and
- allow for critical evaluation.

In postgraduate research, a research design is a working document that may be the outcome of courses in research methodology and methods, and the dialogue between student and supervisor/adviser. It should be the constant point of reference and guide throughout the research. If it is necessary to make changes as the research proceeds, or if it is necessary to allow some elements of the research design to evolve in the course of the research, this will happen in the context of the initial set of research design decisions. Amendments will need to achieve the same consistency between the research design elements.

Before proceeding to outline the requirements for research proposals and research designs, I must point out that I am trying not to be prescriptive (although I certainly am with my own students!). Rather, I offer two frameworks that will no doubt need to be adapted to local requirements and practices. In some situations, maybe only one document is required; in other situations, the distinctions between them may be drawn differently. My purpose is to identify the many elements that should be considered, and about which decisions may need to be made, in planning social research.

Depending on its purpose, the *research proposal* can be prepared in a number of versions. It also differs from the research design in a number of respects: some information may be in a different form, and it may need some additional information. The research proposal may be less technical than the research design, in that it may not include all the details of the decisions and justifications related to each design element. When the research proposal is intended for public presentation, it may include more details on the background to the research problem, including how it arose and the current state of knowledge on it. Hence, it is likely to be a longer and a more discursive document than the research design. On the other hand, an application to a committee for approval of the project may be much briefer, and may emphasize the justification for the research and the more technical aspects of data sources, collection and analysis. An application for research funds may be similar to an approval version, but will usually require a detailed budget and justification for the various categories of expenditure.

Two important points need to be made at this stage. The first concerns the common view that social research consists of a set of linear stages. These stages commonly include the formulation of the problem, the statement of hypotheses, the development of measuring instruments (e.g. an attitude scale or a questionnaire), the selection of a sample, the collection of the data, the analysis of the data, and the preparation of the report (see e.g. Babbie 1992; Bailey 1994; Kumar 1996). I believe that such conceptions are not only much too simplistic, but are also inappropriate for certain kinds of research. In much the same way, the process of designing social research may also be represented as a linear sequence of decisions. While some of the diagrams used in this book could be interpreted in this way, I want to stress that, in practice, the preparation of a research design is likely to involve many iterations, and is a cyclical rather than a linear process. Because the elements of a design must be intimately related, the process of making decisions about any of them will have an impact on other decisions. For example, early decisions may need to be reviewed and changed in the light of problems encountered in making later decisions, and decisions may need to be changed

when the design is reviewed for consistency. In short, a complex process is required to make the various decisions compatible.

The second point is concerned with the view that all research design decisions should be made before the research begins in earnest. I will argue that every effort should be made to do this. The discipline of having to confront the decisions will be beneficial in the long run. To avoid doing this could mean losing control of the research and, ultimately, failure to complete it satisfactorily. However, this ideal needs to be tempered with some practicalities. It is necessary to recognize that research designs differ in the extent to which it is possible to finalize all the design decisions before the major stages of a project commence. In some research projects, what is learnt in one stage of the research will help to determine what will be done in a later stage. Some research projects that use qualitative methods may have this character. In other research projects, some exploratory and developmental work may be required in order to be able to make important research design decisions. In fact, to fail to do this may jeopardize the project. This exploratory work will usually occur at the beginning, but may have to be undertaken later, particularly if unanticipated problems are encountered. Therefore, while it is important to strive for the ideal, the realities of a particular project must be taken into consideration.

It is in research projects that are concerned with theory generation rather than testing that flexibility in the research design is certainly necessary. In these cases, the design may need to evolve as the research proceeds. Nevertheless, this should not be used as an excuse for sloppy designing at the beginning, or for not dealing with design decisions rigorously, as they need to be made. I believe that in this developmental type of research, no harm is done by trying to think through the design decisions at the beginning, and then being prepared to amend them at the appropriate stage.

It is inevitable that research projects will differ in the time needed to prepare the research design; some research topics are just more complex than others, or may be venturing into relatively uncharted territory. Hence, the time and effort required to produce a research design is usually much greater when a researcher starts a project from scratch, rather than by joining a research team or by picking up a project to which someone else has already made a significant contribution. It seems to be a common feature of postgraduate research in the social sciences that students are expected to, or wish to, define and develop their own project. Consequently, the design stage of postgraduate social science research is more demanding and time-consuming than it appears to be in the natural and physical sciences. In the latter disciplines, students usually become part of a research team, or make a contribution to their supervisor's research programme.

Research Proposals

Given the two common functions of a research proposal, obtaining approval for the research to proceed, including obtaining clearance from a human ethics committee and applying for research funds, its preparation needs to be taken seriously.

The preparation of a proposal is not some arbitrary task imposed by authority; it is in a student's interest to be as clear as possible about what he or she is going to do. A proposal should be the result of careful thought, and several drafts should be prepared and discussed before the final product is submitted. (Preece 1994: 202)

The purpose of the proposal is to ensure that the research is well designed and meets the requirements of the discipline and/or the institution in which it will be undertaken. It should communicate clearly and concisely what is to be studied, why it is being studied, and how the research will be conducted. The details of the design of the research are likely to receive close scrutiny. It is also an opportunity for students to receive some feedback and advice from a wider audience than their supervisor(s)/adviser(s). While this feedback is not always sympathetic, and may produce confusing and conflicting recommendations, it is nevertheless very useful for a project to be subjected to such an examination before it proceeds.

The research funding proposal has a different purpose. It is designed to persuade a funding body that the project is worthy of financial support. Committees that are set up for such purposes will look closely at the aims and justification of the research, at whether the design is sensible and feasible, at the budget details and the justification for each item, and at whether the project can be completed with the available resources and in the time allocated.¹ In short, this is a rather different audience to the one involved in obtaining academic approval. Hence two versions of the research proposal may be required.

As the requirements for these and other versions of a research proposal vary considerably in terms of their purpose and local requirements, no attempt will be made here to provide models of each type. Rather, I shall set out a range of headings, a selection of which will be relevant to most types of research proposals.

I have chosen to discuss the requirements for the *research proposal* before those for the *research design*, as the former tends to be more comprehensive while the latter goes into greater detail on a more limited range of topics. Some sections are common to both, some are the same but are given a different emphasis, while others are specific to only one version.

All or most of the following sections are typical of *research proposals*.

Title

The title of a research project needs to be both concise and informative. It should capture the essence of what the project will be about and where and with whom it will be conducted. It is sometimes useful to divide the statement of the topic into two parts: the first part can refer to the issue under investigation; and the second part can locate the study. (See chapter 8 and the Appendix for examples of the wording of research topics.)

¹ What follows should not be read as advice on how to prepare applications for research grants. Numerous books have been written on this. Rather, the purpose is to improve the quality of research by improving the quality of design and planning.

Statement of the topic/problem

The topic or problem is the intellectual puzzle that the researcher wants to explore. The statement will normally consist of a few paragraphs that present a concise description of the nature of the problem to be investigated. This will usually require reference to some literature, such as reports of previous research in the field and related areas, both academic and non-academic, theoretical discussions, official statistics, and, perhaps, newspaper articles. It might be informed by the findings of exploratory research that has already been undertaken.

A research design may set out with more than one problem or a related set of puzzles. As the work on the design proceeds, the one to be investigated should become clear. To recapitulate, a research proposal is the product of a developmental process. It is likely to involve a number of iterations before all the choices are made and it becomes coherent. In many research projects, the problem is likely to be refined in the course of the research (see chapter 2, 'Getting Started').

Aims and significance

It is important to state what the research is designed to achieve; what it is intended to contribute to the state of knowledge in a discipline or disciplines, to some group, organization or community, or to the society as a whole. Most social research projects will contribute to one or more of the following:

- the development of a particular area of theory or methodology;
- the collection or accumulation of a new body of information or data;
- the development of research methods or techniques;
- knowledge about or understanding of an issue or problem; and/or
- policy and practice in a particular area.²

It is also useful to state such aims in a manner that will make it possible to assess whether, or to what extent, they have been achieved at the end of the research.

The statement of aims is normally accompanied by some justification for pursuing them, i.e. why the topic is worth studying. All social research requires the use of resources, even if it is just the researcher's own time. In the context of postgraduate research, students may need to pay fees, and the university will devote considerable resources to supporting such students. As research resources are scarce, their allocation needs to be husbanded. Funding bodies will certainly want to know what contributions a study is likely to make. This is not to suggest that all research must be able to make immediate contributions to areas of priority established by public and/or private interests. However, some good reasons for doing it should be articulated, even if it is just to satisfy the researcher's curiosity.

² This list comes from the British Economic and Social Research Council application form for research funds. Similar lists will be found in other such documents.

Background

Some versions of the research proposal will normally require a discussion of how the research problem has arisen, who views it as a problem, evidence for its existence, the context in which it occurs and who are the stakeholders. In more theoretical research, it may be necessary to specify where the gap in knowledge exists and why it needs to be bridged. In short, a concise review of some of the literature will connect the proposed project with the existing state of knowledge.

In my experience, there is a tendency among postgraduate students to devote most of their proposal to a review of the literature. This may include erudite discussions of the ideas of a favourite or fashionable theorist. However, the connection between such discussions and the research project are often not very clear. Therefore, this version of the literature review, unlike that in the thesis itself, should be very concise, although its length will no doubt depend on the type of research being planned and local requirements.

Research plan and methods

The main aim of this section is to communicate, both to experts in the field and to lay audiences, from where and how the data will be collected, and how it will be analysed. What is needed is an outline of the way in which the research will be conducted. The research design is invaluable for the preparation of this section of the proposal. It will have dealt in detail with all the research design decisions about the sources, types and forms of data needed to answer the research questions, the method of selecting the data (including sampling design), and the methods of collecting, reducing and analysing the data. If these research design decisions have been made carefully, then summarizing them for the research proposal should be straightforward. The components of this section of the research proposal will be dealt with in more detail in the discussion on the requirements of a research design.

The research questions that are to be investigated should also appear in this section. If appropriate, any related hypotheses should be stated and their sources indicated. In some types of research, it may be necessary to discuss how research instruments will be developed. For example, if an attitude scale is required, and if no existing scale is suitable, an explanation should be given as to how existing scales might be adapted and supplemented, or a new one constructed. In addition, there needs to be a discussion of how its relevance to this particular population or sample will be established, including pre-testing and/or post-testing for unidimensionality or multidimensionality. Similarly, proposed pilot studies should be outlined and their purposes clearly stated.

Budget

Regardless of whether the project is receiving support from a funding agency, a budget is normally required to indicate what funds are needed and how they will

be spent. As even postgraduate research costs money, it may be useful to anticipate what the costs are expected to be and how they will be covered. In the case where an application for a research grant is to be made, a detailed budget is normally required. The following headings are standard:

- *personnel* (e.g. research assistance, interviewers, coders, data analysts, interview transcribers);
- *equipment* (major items such as computing, audio recording and transcribing equipment);
- *maintenance* (day-to-day running expenses such as stationery, telephone, photocopying, computer disks, audio cassettes, interlibrary loans and purchase of reports);
- *travel and subsistence* (to research sites, for interviewing, or to libraries); and
- *publication and presentation expenses* (preparation of the report, printing, graphics, etc.).

Justification of the budget

Applications for research grants normally require a justification for the need and the amount for each item in the budget. Some research funds require the budget items to be prioritized, thus forcing the researcher to be very clear about their relative importance for the successful completion of the project. Where equipment (e.g. computers, software and cassette recorders) and other resources (e.g. personnel for data entry) are already available, and can be used on the project, these should be noted. Bodies that fund academic research usually expect that some costs (e.g. office space and furniture, and some basic equipment) will be covered by the university or research centre in which the researcher is located.

Budget items need to match the details of the research design. For example, if 200 interviews are to be conducted in dispersed locations, then realistic costing of these is necessary, in terms of equipment and consumables, interviewers' time for the interviews and travel to the sites, as well as the cost of travelling. It is here that the flaws in the research design and planning can become evident.

Timetable

In order to ensure that a research project is manageable and doable, it is useful to plan the duration of each of the components and stages within the time-frame allocated to it. The major components commonly include the following: preparation of the research design; review of the literature; selection of data sources (including sampling); development of the research instruments; collection of the data; analysis of the data; and writing the thesis/report. However, the components will need to be modified, depending on the nature of the research. In the case of research grants, the literature review and research design stages are assumed to have been completed before the application is prepared. The same applies in those universities that require a detailed research proposal to be prepared before a candidate is accepted into the programme. Where the development of the research

design follows acceptance for candidature, it is desirable to include all stages, even if retrospectively, as the clock will have been running since the time of acceptance.

These components can overlap in time (e.g. the research design and literature review, or data collection and analysis), and some may occur at more than one time (e.g. the literature review) or extend over much of the life of the project (e.g. writing drafts). While it is difficult to be precise about how long each component will take, a realistic estimate should be made. This will help to reveal whether the project as planned can be completed within the time limits, and whether the workload is manageable in each time period. It is useful to do this diagrammatically in terms of a time line for each component.

One component that is usually underestimated is the writing. A good thesis needs many drafts (at least three in my opinion). If insufficient time is allowed for redrafting at the end, a poor product is likely to be the result. Writing can easily take between a third and a half of the total time, and will certainly take at least a quarter.

Some research grant bodies require the specification of definite 'milestones' so that progress can be checked. In these cases, the anticipated completion date for the major research stages (e.g. data collection) would need to be stated. If a project runs over an extended period, for example, two or three years, progress reports may be required at regular intervals. The work actually completed by a particular date can then be compared with the anticipated date in the proposal. Discrepancies may need to be satisfactorily accounted for if funding is to continue. I believe the same practice is desirable in postgraduate research programmes.

Expected outcomes or benefits

It has become a common practice, particularly in publicly funded research, for the anticipated benefits to be stated.³ Traditionally, academic research has been about the pursuit of knowledge, the real benefits of which are to be left to posterity to determine. However, in this age of economic rationalism, even academic research may be expected to make some reasonably direct and useful contribution to some field of high priority in the public or private sectors. In the case of applied and policy research, someone other than the researcher may determine the expected outcome. If research grant bodies have their agenda and priorities, an application would need to address these.

Ethical issues

Most social research involves intervention in some aspects of social life. There is always a risk that even asking someone quite innocent questions could be disturbing to that person. It has therefore become normal practice for the ethical implications of a social research project to be made explicit, together with the

³ This may be included in the 'Aims and significance' section as it follows logically from its specifications.

procedures to be used to deal with them. For research conducted within universities and independent research organizations, it may be mandatory for every social research project to be considered and approved by a human ethics committee. Professional associations in the social sciences now usually have a code of ethics, and these can also be used to guide professional research and to judge unethical practices.

The major ethical issue in most social research is related to the treatment of human respondents or participants. Procedures need to be in place to provide them with adequate information about the nature of the project, what is expected of them, how the research procedures might affect them and how their anonymity will be assured, as well as assuring them that the information they provide will be treated in confidence, and that they have the right to withdraw from the process at any stage. Judgements have to be made about what is reasonable and appropriate, and informed consent should be obtained, preferably in writing if possible. For a great deal of social research, there are few, if any, ethical problems. However, this does not mean that consideration of ethical issues can be avoided. Most textbooks on social research methods now have chapters on research ethics (see e.g. de Vaus 1995 and Neuman 1997).

It is important to note that ethical issues are not the same as the practical problems that the researcher expects to encounter.⁴ The latter are dealt with in the next section. However, finding appropriate ways of dealing with the ethical aspects of a project can create practical problems. For example, the need to inform potential interviewees about the nature of a project may increase the refusal rate and, hence, threaten the researcher's ability to produce useful results.

Problems and limitations

An important step in the preparation of a research proposal is to stand back and evaluate it. First, it is useful to state what problems are likely to be encountered and how they will be dealt with. These will include both practical and theoretical problems, such as getting the co-operation of respondents, or knowing what further case studies will be required after the first one. The problems listed here should only be those that cannot be resolved at the design stage. For example, getting permission to use a list of names and addresses, or getting access to the research site, are matters that cannot be left to chance after the research commences.

Secondly, it is a good idea for the researcher to make an explicit assessment of the particular strengths and weaknesses of the research design. All projects have their secure and predictable aspects as well as their less secure and uncertain parts. In addition, those parts of the design that require further development as the research proceeds can be identified. If this assessment is done conscientiously, the researcher should be in a position to anticipate possible problems before they arise, rather than inadvertently ending up down a blind alley or falling in a great hole.

⁴ I mention this point out of exasperation at the number of occasions, in spite of clear instructions, in which this confusion occurs.

I have noticed that some students are reluctant to expose the weakness of their research design for fear that their work will be judged as being inadequate. The reverse is in fact the case. Lack of awareness of both the strengths and weaknesses of a research design can be interpreted as indicating a shallow understanding of research.

Communication of findings

It has been argued that one criterion that *scientific* research should satisfy is that it should be made public. It can be argued that researchers have a responsibility to communicate their findings to people who can benefit from them. How this is to be done should be considered as part of the research proposal. Research grant administrators may be keen to know how the researcher plans to do this, and they may be willing to cover or contribute to the costs. However, the onus is also on thesis writers to consider ways of making the results of their research known to a wider audience than just those who read theses in university libraries. Following the completion of a thesis, some universities have a requirement that students make a public presentation to the university community and, perhaps, selected outside guests. Of course, traditional methods include conference presentations, journal articles and books. Some research lends itself to reporting in the media, such as newspapers and magazines. There are now other possibilities in this electronic age.

Some kinds of research, such as applied, commissioned or sponsored research, may have more limited, in some cases even restricted, audiences. However, applied researchers might want to insist on retaining the right to publish at least some of the findings themselves before accepting such commissions.

Research Designs

Unlike a research proposal, a *research design* is usually not a public document and may be seen by only a few people close to the researcher. It is an integrated statement of and justification for the more technical decisions involved in planning a research project. Ideally, designing social research is the process of making all decisions related to the research project before they are carried out. This involves anticipating all aspects of the research, then planning for them to occur in an integrated manner. Designing a research project is the way in which control is achieved.

To design is to plan; that is, design is the process of making decisions before the situation arises in which the decision has to be carried out. It is a process of deliberate anticipation directed toward bringing an expected situation under control... If, before we conduct an inquiry, we anticipate each research problem and decide what to do before-hand, then we increase our chances for controlling the research procedure. (Ackoff 1953: 5)

This process is analogous to the activities of an architect in designing a building: it involves recording, relating and then evaluating the decisions that need to be

made. Careful attention to detail, and a concern with the overall workability of the design, is required. Designing social research involves the same processes. In particular, it is necessary to make sure that individual design decisions are consistent and fit together. These decisions then need to be evaluated critically, and, to do this, the design decisions need to be made explicit. This book is about how to achieve this.

The components of a research design can be organized in many ways. The following framework is presented as an example of what the structure of a research design might look like. (Examples of four different research designs are presented in chapter 8.)

Title

The requirements are the same as for the research proposal.

While it is useful to have a clear statement of the topic at the beginning of the research design process, this is not always possible. Not only is the nature of the research likely to be clarified during the course of preparing the research design, but also the best title may not emerge until after the research is completed. Therefore, it is unwise to waste time at the beginning trying to get the wording of the topic perfect. As we shall see, it is better to concentrate on preparing the research questions and other elements of the design, and then come back to the wording of the title later.

Statement of the topic/problem

The requirements here are also the same as for the research proposal.

While it is important to try to get the ideas on the topic clear as soon as possible, as with the title, it is unlikely that a precise statement can be formulated at the beginning of the design process. It is more likely to evolve as the design develops and may only become clear towards the end of the process. In addition, it is often necessary to make changes to the topic as the research proceeds (see chapter 2, 'Getting Started').

Motives and goals

The research design is the place where a researcher's personal motives and goals for undertaking the research can be stated. Academic researchers, including postgraduate students, will have personal reasons both for doing research at all, and for choosing a particular topic. Making these motives and goals explicit is a useful exercise and is often quite revealing. Personal reasons might include satisfying curiosity, solving a personal problem, achieving a credential or pursuing career goals. In addition, a researcher may have other more public or altruistic reasons, such as making a contribution to knowledge in a discipline, solving some social problem, or contributing to some organization or sector of society.

Research questions and objectives

Research questions constitute the most important element of any research design. It is to the answering of them that the research activities are directed. Decisions about all other aspects of the research design are contingent on their contribution to answering the research questions. In many ways, *the formulation of research questions is the real starting-point in the preparation of a research design.*

Research questions are essential and need to be stated clearly and concisely. They can be reduced to three main types: 'what', 'why' and 'how' questions. It is important to distinguish between these types of questions as they are related to different research objectives. In general, 'what' questions seek descriptions, 'why' questions seek explanations or understanding and 'how' questions are concerned with interventions to bring about change.

It may be useful to separate major research questions from secondary or subsidiary questions. The latter are either related to the background and context of the research, or help to elaborate the major questions. Major research questions presuppose other questions; they can sometimes also be broken down into a series of questions.

It is not necessary to state aims in a research design. They were included in the guidelines for a research proposal as it is intended for public consumption; stating aims is a useful way of communicating what the research is about. Instead, in a research design, consideration might be given to listing research objectives. These are defined in a more technical way than research aims and specify what the research is intended to achieve: it may be to 'explore', 'describe', 'explain', 'understand', 'predict', 'change', 'evaluate' or 'assess the social impact of' some aspect(s) of the phenomenon under investigation. Such objectives help to define the scope of the study, and, together with the research questions, provide a clear direction.

I consider it to be acceptable to simply present the research questions and not to state research objectives. However, the reverse is not. In many ways, research questions state the ideas contained in the research objectives in a different way. While it is possible that research questions will emerge before the objectives, in my experience working with them together has many benefits. The interplay between the requirements of each helps to sharpen and clarify both.

It is important not to confuse research objectives with the activities that are required to undertake the research. I have frequently encountered statements which say that the research will: 'review the literature', 'obtain documents related to...', 'design a questionnaire', 'select a sample', or 'collect data related to...'. Such a list is unnecessary, as these details will be covered in other sections of the research design (see chapter 3).

Review the literature

A research design should include a brief literature review. Its major function is to link the proposed research with the current state of relevant knowledge. Many

areas of literature may need to be examined, for example, to provide the background and justification for the research; and to select theory, research strategies and methods. However, this section of the research design will normally be confined to indicating clearly what is known with regard to each of the research questions, on the basis of previous research, or what could be anticipated in the light of existing social theory. In the case of research for a thesis, a longer version will need to be produced and will probably become a chapter. Work on this will usually continue throughout the duration of the research. However, only a summary is normally included here.

The research questions can provide the framework for both this brief review and the chapter in the thesis; they determine the boundaries of what is relevant. Literature that is unrelated to a research question need not be included. Using this device can save endless hours of directionless activity in libraries.

Of course, consulting previous research and relevant theory may have inspired the project in the first place, or it may need to be consulted to define the topic and develop the research questions. In addition, the language used to define and discuss the research problem, and the key concepts that are used, are likely to be drawn from some theoretical perspective, the work of a particular theorist or a research programme.

Another purpose of the literature review is to find possible answers to research questions, particularly 'why' questions. In other words, we may need to search for possible hypotheses. If hypotheses are considered to be necessary, ideally they should be derived from a theory, either an existing one that will be included in the literature review (and might later form the basis of a separate theory chapter), or one that the researcher has constructed for the research in hand. The latter will normally modify an existing theory, or integrate ideas from a number of them. There is always the remote possibility that the review of the literature will reveal that answers to all or some of the research questions are already available and that the research project is, therefore, unnecessary. Another topic will then have to be selected. For practical guides see Hart (1998) and Fink (1998), as well as books on writing theses/dissertations (see chapter 3, 'Research Questions and the Literature Review').

Research strategies

Research strategies provide a logic, or a set of procedures, for answering research questions, particularly 'what' and 'why' questions. However, there is not just one way to do this. As the social sciences have developed, a number of views have emerged on how this can be done.

In my view, the choice of research strategy, or a combination of them, constitutes the second most important research design decision. The reason for this is that I believe knowledge can only be advanced in the social sciences by using one or more of these research strategies (see Blaikie 1993a).

In brief, the four research strategies, the *inductive*, *deductive*, *retroductive* and *abductive*, provide distinctly different ways of answering research questions. They present alternative starting- and concluding-points, and different sets of steps

between these points. The *inductive* research strategy starts with the collection of data and then proceeds to derive generalizations using so-called inductive logic. The aim is to determine the nature of the regularities, or networks of regularities, in social life. Once these are established, they can be used to explain the occurrence of specific events by locating them within the pattern of established regularities. This strategy is useful for answering 'what' questions but rather limited in its capacity to answer 'why' questions.

The *deductive* research strategy adopts a very different starting-point. It is particularly appropriate for the answering of 'why' questions. The strategy begins with some regularity that has been discovered and which begs an explanation. The researcher has to find or formulate a possible explanation, a theoretical argument for the existence of the behaviour or the social phenomenon under consideration. The task is then to test that theory by deducing one or more hypotheses from it, and then to collect appropriate data. Should the data match the theory, some support will be provided for its continuing use, particularly if further tests produce similar results. However, if the data do not match the theory, the theory must be either modified or rejected. Further testing of other candidate theories can then be undertaken. Therefore, according to this research strategy, knowledge of the social world is advanced by means of a trial and error-process.

The *retroductive* research strategy also starts with an observed regularity but seeks a different type of explanation. In this strategy, *explanation* is achieved by locating the real underlying structure or mechanism that is responsible for producing the observed regularity. To discover a structure or mechanism that has been previously unknown, the researcher has to first construct a hypothetical model of it, and then proceed to establish its existence. This may need to be done by indirect methods, as the structure or mechanism may not be directly observable. The search is for evidence of the consequences of its existence; should it exist, certain events can be expected to occur. *Retroduction* uses creative imagination and analogy to work back from data to an explanation.

The *abductive* research strategy has a very different logic to the other three. It is sometimes described as involving induction, but this grossly underestimates the complexity of the task involved. The starting-point is the social world of the social actors being investigated: their construction of reality, their way of conceptualizing and giving meaning to their social world, their tacit knowledge. This can only be discovered from the accounts which social actors provide. Their reality, the way they have constructed and interpreted their activities together, is embedded in their language. Hence, the researcher has to enter their world in order to discover the motives and reasons that accompany social activities. The task is then to redescribe these motives and actions, and the situations in which they occur, in the technical language of social scientific discourse. Individual motives and actions have to be abstracted into typical motives for typical actions in typical situations. These social scientific typifications provide an *understanding* of the activities, and may then become the ingredients in more systematic explanatory accounts.

While the advocates of each strategy claim superiority for their own, each also has its critics. No strategy is without its faults or limitations. Because of their deficiencies, researchers need to adopt a pragmatic attitude towards them.

A research design should include a brief description of the research strategy or strategies that have been selected, and justification for the selection in terms of its/their appropriateness for the task. It is desirable to make explicit the ontological and epistemological assumptions entailed in the choice of research strategy or strategies, as these have a bearing on how the use of the methods of data collection and analysis will be interpreted (see chapters 4 and 7).

Concepts, theories, hypotheses and models

Somewhere in a research design a discussion of concepts and theory is likely to be required. This may occur in a separate section (e.g. 'Conceptual Framework' or 'Theoretical Model'), or may be integrated in another section (e.g. 'Literature Review'). Just what will be required, and how it will be handled, will depend on a number of things, including, particularly, the research strategy or strategies that are to be used.

All social research uses technical concepts; they form the special language of every discipline. Technical concepts are required at the outset of the research design process to state the topic and research questions. However, after this, the way they enter into the research process differs, depending on the research strategy that is adopted. Some research will set out with some key concepts, perhaps even with a conceptual framework, and these concepts will become variables through the specification of procedures for measuring them. In other research, only sensitizing concepts will be used at the outset. Technical concepts will either emerge out of an intense examination of lay concepts, or will be created or borrowed to organize qualitative data.

The manner in which theory enters into research is a matter of great controversy and confusion, particularly for novice researchers. A common criticism of some research is that it is atheoretical, that it neither uses nor contributes to the development of social theory. On the other hand, some researchers may wish to argue that descriptive research does not need theory, that measuring variables and correlating them is a purely technical matter. However, I believe that it is impossible to avoid using theory in research. Even descriptive studies that may be concerned with just a few concepts cannot escape, as all concepts carry theoretical baggage with them.

Theory enters into social research in many ways. A social theory may be a source of a theoretical language or specific concepts, and of general theoretical ideas or specific hypotheses. The four research strategies entail different views of what constitutes theory and how it enters into the research process. Focusing on these four views will help to reduce some of the complexity. The four research strategies also differ in terms of whether they set out with a theory to be tested, or whether their aim is to produce a new theory, i.e. whether they are concerned with theory testing or theory generation. Research that is concerned with theory generation may require sensitizing concepts but no hypotheses. On the other hand, research that is concerned with theory testing will require the researcher to borrow or construct a theory before the research begins. In this case, it is desirable to at least do some work on this theory at the research design stage; it

can then be stated, its origins and relevance explained and, if appropriate, hypotheses can be derived from it.

Hypotheses are tentative answers to research questions. They are frequently stated in the form of a particular kind of relationship between two concepts. Testing them involves seeing if the associated variables have the same relationship as that predicted in the hypothesis. However, not all research questions, or all research projects, require hypotheses. They are particularly relevant to 'why' questions, and perhaps to some 'how' questions, but they are not relevant to 'what' questions. In addition, hypotheses are only relevant when research is about theory testing, and they are not relevant when the concern is with theory development. The latter may use many tentative hypotheses in the trial and error process of developing theoretical ideas to account for the data at hand, but these cannot be formulated at the research design stage.

Unless a researcher is testing an existing hypothesis, the formulation of good hypotheses requires a great deal of theoretical work. The testing of personal hunches as hypotheses constitutes a much lower level of research activity and should, therefore, be avoided in good-quality research. Such hypotheses usually make very little contribution to the advancement of knowledge because they are not well connected to the current state of knowledge. But let me repeat, hypotheses are more appropriate to some research strategies than others.

As with theory, the role of models in social research is a complex issue on which there is a diversity of ideas and practices. 'Model' can refer to a conceptual framework, a hypothesized set of relationships between concepts, a hypothetical explanatory mechanism, or a method of organizing research results. It is not uncommon to use 'theory' and 'model' interchangeably, or even in combination, for example in the phrase 'theoretical model'. Add the notion of 'modelling', and we have another range of activities and products to confuse the new researcher.

Some research strategies, particularly the *deductive* and *retroductive*, may require models to be developed at the outset. These may be conceptual models, theoretical models, or hypothetical models of causal mechanisms. Other research strategies, particularly the *inductive*, can introduce models at the data analysis stage where they represent the patterns in the data in a simplified form. Familiarity with the research strategies will be required before this part of the research design can be dealt with.

This section of the research design is likely to be the most difficult to complete. A broad understanding of the role of concepts, theories, hypotheses and models is required, and, possibly, a detailed knowledge of a range of theories (see chapter 5).

Data sources, types and forms

It is necessary to give consideration to the context or setting from which data will be collected, and to recognize the differences between them in terms of the nature of the data that they can produce. Data can be collected from four main types of sources, as well as from or about individuals, small groups and larger groups of many kinds. First, people can be studied in the context in which the

activities of interest to the researcher occur, where people are going about their everyday lives, in their natural social environment. For example, family interaction may be studied in a home, or religious rituals in a temple. The size of the social unit studied in this way can range from individuals and small groups, through organizations and communities, to multinational bodies. These are referred to as *natural* social settings.

Second, a great deal of research studies people in *semi-natural* settings, when they are not actually engaged in the activities of interest. For example, people may be interviewed individually, or participate in discussions in focus groups, *about* the activities in which they engage in their natural settings. Sometimes data are not particularly about a social setting at all, but may deal with the attitudes and values of individuals. The third context is *artificial* settings. The classical form is the experiment; focus groups, games and simulation research are similar.

Fourth, the wide range of data that do not come from people directly are usually referred to as *social artefacts*. They are the traces or products that individuals and groups leave behind them, directly or indirectly, as a result of activities in their natural settings. People in groups produce statistics and documents and keep records for a variety of purposes, and these may be of use to the researcher. They may come out of natural settings, or be about activities in these settings.

While a research project may draw on data from only one of these sources, the use of a combination of them is common. The choice of data source will normally be incidental to other research design decisions. It is included here to highlight the need to be aware of the consequences of this decision in terms of the number of steps that the researcher can be removed from where the relevant social activity occurs.

At a more concrete level, decisions about data sources are contingent on the researcher's ability to access them. It is vital at the design stage to obtain the approvals that are necessary from the relevant gatekeepers. This may involve getting written permission from some authority to enter a natural setting (e.g. school classrooms), to conduct interviews in a semi-natural setting (e.g. with members of a work organization) or to get access to some records (e.g. case files on welfare recipients). Of course, some forms of permission have to wait until the time of data collection (e.g. individual interviews with householders).

Before the decision is made about what methods to use to collect and analyse the data to be used to answer the research questions, it is useful to give consideration to the type of data needed and the form in which the data are required. This involves a number of related decisions, although these will not necessarily be made in the order in which they are discussed here.

Three main types of data can be used in social research: *primary*, *secondary* and *tertiary*. Primary data are collected by the researcher, secondary data have been collected by some other researcher and are used in their raw form, and tertiary data are secondary data that have also been analysed by someone else. Hence, researchers may generate their own data directly from the people being studied. Alternatively, it may be possible to use data produced by someone else, either in the form of official government statistics, privately compiled statistics, or data from a previous research project. Sometimes these data may be available

in raw form, for example as a data matrix or as interview transcripts, or they may have already been analysed and only be available in tabular or summary form.

Depending on the nature of the research topic and the research questions, a researcher may have little or no choice about the type of data that can be used. However, the critical issue is the distance of the researcher from the source of data. Each type of data implies a different degree of control that a researcher has over the data to be used. The further the researcher is removed from the collection process, the more difficult it is to judge the quality of the data and to ensure that they are appropriate for the project. These matters need to be made explicit in the research design, and the problems associated with the particular decisions, and methods for dealing with them, discussed.

Consideration should also be given to the form or forms in which the data will be collected and analysed. The common distinction used for this is between *quantitative* and *qualitative* data, between data in numbers or in words. However, this is not a simple distinction. Data may remain in one of these forms throughout the research process, or they may be transformed from one to the other at later stages. Data may start out as words, be manipulated soon after into numbers, may be analysed numerically, be reported in numbers, but then be interpreted in words. Alternatively, data may start out as words, and then be recorded, analysed and reported as text. Research projects can use data in both forms and they can be combined in a variety of ways. In the case of quantitative data, the levels of measurement, nominal, ordinal, interval or ratio, should be specified for each of the variables to be used.

The reason why it is desirable to give consideration to this issue at the research design stage is to ensure that the methods for collecting and analysing data are selected appropriately, and that the technology, mainly computer hardware and software, is available (see chapter 6, 'Types of Data', 'Forms of Data' and 'Sources of Data').

Selection of data sources

A critical stage in any research is the process of selecting the people, events or items from which or about which the data will be collected. This involves the definition of the population of such people, events or items. Some research projects will collect data from the whole population; others will select only certain members or items for study.

Textbooks on social research methods usually discuss data selection in the form of a review of methods of sampling. While data selection is a much broader topic than sampling, one or more sampling methods are frequently used in social research. This is true whether the study uses quantitative or qualitative methods of data collection.

A series of research design decisions is involved in the selection of the data. The first is whether a whole population, however that is defined, will be studied or whether only a segment will be used. If a segment is to be used, the second decision is whether the selection process should allow results to be used to

represent the population from which it was drawn, i.e. will the selection process use random (probability) or non-random (non-probability) methods? Probability sampling selects units or elements from a defined population such that each unit has a known and non-zero chance of being selected. In other words, every unit has a chance of being selected, and, if all units do not have the same chance of being selected, the differences in these chances are known. Non-probability sampling does not satisfy this criterion. A number of selection methods are available within each category, and these methods can also be used singly or in combination (see chapter 6, 'Populations and Samples').

Whether samples are intended to represent the population, and how this can be achieved, is a central design issue. However, a collection of people can be studied as the result of a selection process that is not concerned with representativeness. In other words, while random selection may be necessary for sample data to be used to generalize to a population, other criteria of selection can be used, particularly when the concern of the research is with theory generation.

Regardless of whether probability or non-probability sampling methods are to be used, the method should be elaborated in detail and the choice of method(s) justified. In addition, the source and size of the population or sample needs to be determined and justified. If some other method of selection is to be used, such as case studies, the procedures should be stated and also justified (see chapter 6, 'Selection of Data').

Data collection and timing

Collecting and analysing data are frequently regarded as the core activities in social research. Novice researchers have a tendency to want to launch into data collection as soon as a research topic has been selected, for example, to get on with constructing a questionnaire or start interviewing. If this book does nothing else, I hope it will temper this practice and show that decisions about data collection and analysis must await many other considerations.

A wide array of quantitative and qualitative methods is available in the social sciences, and there are countless books available on how to develop and use them. They discuss a variety of types of observational methods, ranging from highly structured to unstructured, and from a very detached position to a very involved position. Similarly, many types of interviewing are reviewed, ranging from highly structured to unstructured or in-depth methods, and including both individual and group interviews. A range of methods for the content analysis of secondary data is also likely to be included.

The research design needs to specify clearly the method or methods to be used to collect the data. It is extremely important in quantitative research to decide, before the research begins, how the data are to be collected and to do all that is necessary to prepare for this. This may seem obvious, but it is not always taken seriously. Just muddling through will not do. The same is true for many qualitative studies, although there will be exceptions where some of these decisions may have to be made as the research proceeds. However, as I have argued earlier, this should not be used as an excuse for avoiding careful planning.

If quantitative data are to be collected using an existing measuring instrument, its source should be stated and a copy should be attached. If a measuring instrument needs to be developed, such as an attitude scale or a questionnaire, the process by which this will occur, including any pre-testing and piloting of the instrument, needs to be outlined and justified. In the case of qualitative data, it is important to indicate what method or methods will be used to generate and record them and to state why these are considered to be the most appropriate.

The time(s) at which data are collected is a critical element in a research design. Data can be collected at one point in time or at a series of points over time. One of these points can be the present time, while others may have occurred in the past or be planned for some time in the future. Decisions about timing will determine whether the study is cross-sectional or longitudinal, retrospective or prospective or historical. Experimental research also involves the collection of data at different times. Hence, the role that the timing of data collection will play in the project needs to be stated.

Data reduction and analysis

The final core element of a research design is the specification and justification of the methods to be used to reduce and analyse the data. Methods of data reduction transform the raw data into a form in which they can be analysed. This may involve transforming qualitative data into quantitative data by some form of numerical coding, or re-coding existing numerical data into different categories. An example of the latter would be reducing the number of categories to be used, and/or reordering the categories. Coding may also be used to organize and simplify data that have been collected in the quantitative form, for example by the creation of indexes, scales, factors or clusters. Alternatively, when qualitative data are collected, the processes of reduction and analysis may be integrated with data collection into a continuous and evolving process of theory construction. This will involve establishing categories and doing various kinds of coding.

There is another important stage between data reduction and analysis. The data have to be organized in such a way that they can be transferred into an appropriate database for manipulation by computer. The relevant design decisions here are who will do this and how the cost will be covered. Significant time and expense can be involved in this process. With quantitative data, it is usually a case of keying in responses to a questionnaire or structured interview. With some kinds of qualitative data, it may be necessary to transcribe cassette recordings of in-depth interviews and then format these for entry into a database. It has been estimated that an experienced transcriber, with clear recordings, will take at least three hours to do one hour of recorded interview.

Finally, we come to the choice of methods for analysing the data. If all the other design decisions have been made carefully and consistently, the decisions about the method of analysis should be straightforward. A variety of methods may need to be used, depending on the type of research questions, objectives or hypotheses being explored.

The quantitative/qualitative distinction is most evident when techniques of data analysis are discussed. Quantitative methods can be used for producing descriptions, for establishing associations, and, possibly, causal relationships between variables. They can also be used for making inferences from the results produced from a probability sample to the population from which the sample was drawn. For each of these aspects of quantitative analysis, an array of statistical techniques is available. Just which one is appropriate will depend on the level of measurement that has been used to collect the data, and perhaps the size of the sample. Qualitative methods of analysis can also be used for description at various levels of abstraction (in words rather than numbers), and, more particularly, for theory generation. A number of techniques are now available for the latter analysis, although they are still evolving. When data are in the form of text, the methods generally deal with creating categories, indexing or coding documents, sorting data to locate patterns, describing the patterns, generating theories from the data, and validating these theories. For both qualitative and quantitative analysis, appropriate software packages, as well as suitable hardware, need to be identified and their availability confirmed.

I have observed a tendency in many research designs to discuss methods of data collection but to ignore both data reduction and data analysis techniques. At best, a computer program might be mentioned, but just how the data are to be prepared for entry into a database, and what manipulations will be undertaken to relate the data to the research questions, are often not mentioned.

Each method of data reduction and analysis selected should be identified, briefly described and its use justified. The important point is that the decision on methods of analysis needs to be made in conjunction with many other research design decisions, and before the research commences. It can be fatal to wait until after the data have been collected. Not only do the methods of analysis need to be appropriate for the research questions, and also hypotheses if they are being used, but they also need to match the methods of data collection. Hence, a critical issue in research design is to achieve consistency between the type and form of the data, the source of the data, its selection, and the methods of collection, reduction and analysis. The possible combination of choices here can be overwhelming and should be given very careful attention. Finally, the choice of all these methods must make it possible to answer the research questions (see chapter 7).

Problems and limitations

As for the research proposal.

Conclusion

Having proposed possible structures and content for both *research proposals* and *research designs*, the next task is to find out how to prepare them. For the remainder of the book, I shall concentrate exclusively on the preparation of a research design. This will be done by discussing the three main components: the

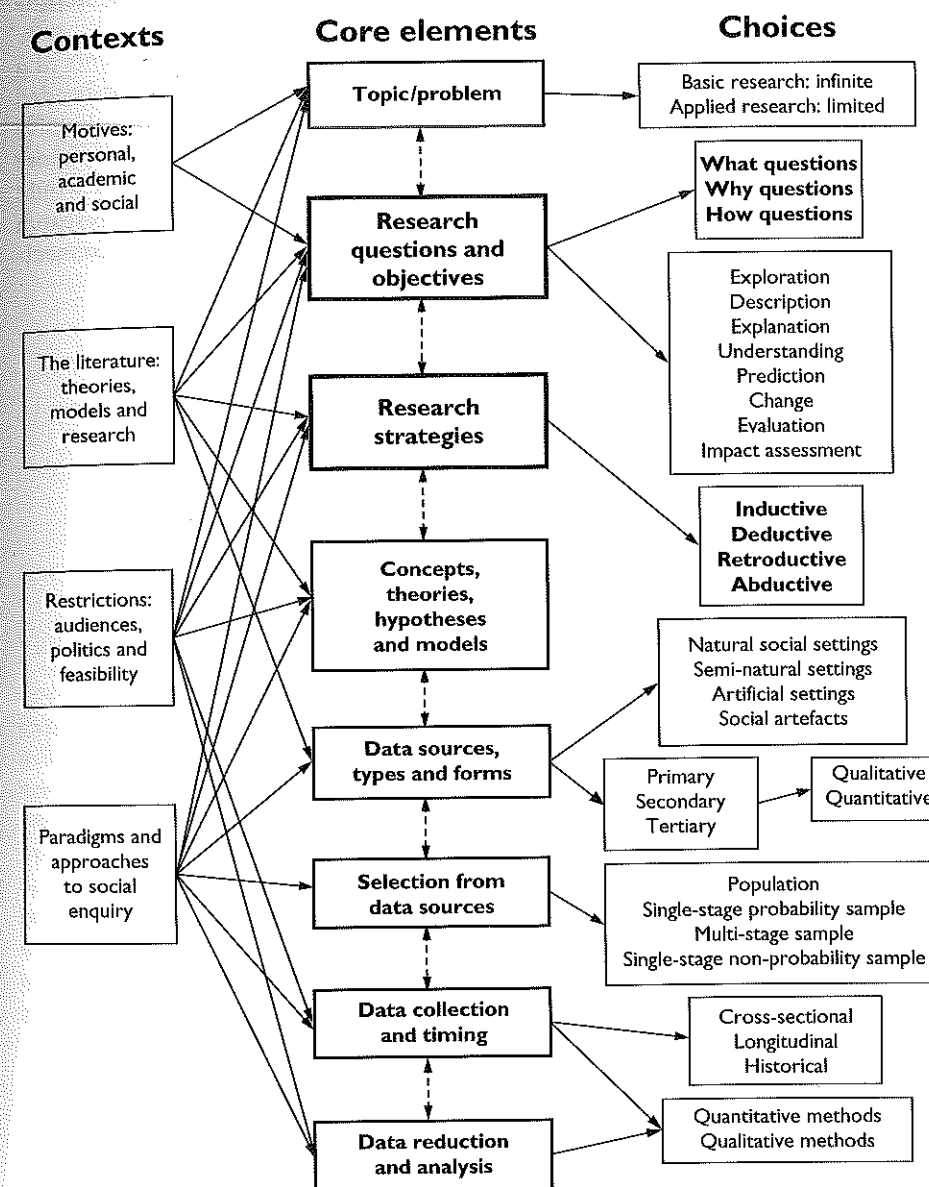


Figure 1.1 Elements of a social research design

core elements, which follow closely the headings just used to structure the research design; for each element, the range of alternatives from which *choices* are made; and the *context* in which these choices are made, i.e. the factors that can influence the choices.

To set the scene, figure 1.1 is presented as a representation of these three components. While many features of the core elements and the choices have

already been introduced, the elaboration of the figure will now follow step by step.

It is important to note that the connections between the core components of a research design (the centre column in figure 1.1) are shown with double-headed arrows to indicate that the design process is not linear and is bound to involve movement in both directions. In fact, the figure could have included many more such arrows linking all the core components with each other. While this would have more faithfully represented the iterative nature of the processes of research design, it would have turned the figure into an unintelligible spaghetti of connecting lines.

2

Designing Social Research

A research design is an action plan for getting from here to there.
(Yin 1989)

Introduction

Social research is the use of controlled enquiry to find, describe, understand, explain, evaluate and change patterns or regularities in social life. This control is achieved through a series of decisions that are made before the research commences and other decisions that may need to be made in the course of the research. This is not to suggest that complete control of all aspects of the research process is always possible. All eventualities cannot be anticipated, and in some areas of research control may be very difficult to achieve. For example, some methods of data collection, such as participant observation, are very unpredictable in terms of how they will develop and where they will take the researcher. However, there are many aspects of research that can and should be planned in advance. The aim should be to achieve maximum control in all aspects, where possible.

The main purpose in designing research before it commences is to:

- make the research design decisions explicit;
- ensure that the decisions are consistent with each other and with the ontological assumptions adopted; and
- allow for critical evaluation of the individual design elements, and the overall research design, before significant research work commences.

Without such an overall plan, social enquiry cannot be controlled and the possibility of a successful outcome is severely jeopardized.

This chapter:

- sets the scene for what will follow in the later chapters;
- critically evaluates the common views and classifications of research design in the social sciences;