

DISSERTATION RESEARCH AND WRITING FOR BUILT ENVIRONMENT STUDENTS

FOURTH EDITION



SHAMIL G. NAOUM

Dissertation Research and Writing for Built Environment Students

Dissertation Research and Writing for Built Environment Students is a step-by-step guide to get students through their final year research project. Trusted and developed over three previous editions, the new fourth edition shows you how to select a dissertation topic, write a proposal, conduct a literature review, select the research approach, gather the data, analyse and present the information and ultimately produce a well-written dissertation.

The book simplifies dissertation research and writing into a process involving a sequence of learnable activities and divides the process into three parts.

Part One covers the necessary groundwork, including: identifying the problem, writing a proposal and reviewing the literature.

Part Two covers the research design and includes: approaches and techniques for data collection and constructing and sampling a questionnaire.

Part Three covers: measurement of data, analysis of data with SPSS, structuring and writing the whole dissertation, and supervision and assessment.

This new edition is packed with updated examples and research samples, making this the ideal resource for students involved in research in built environment subjects such as construction management, construction project management, facilities management, real estate, building surveying, quantity surveying and civil engineering.

Dr Shamil G. Naoum is currently a Senior Lecturer in Construction Project Management at the University of West London and a Visiting Fellow at London South Bank University. He has over 25 years' experience teaching and researching in construction management and related built environment topics.



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Dr Shamil G. Naoum

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To my mother, Rose



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Contents

List of figures xii

List of tables xiv

List of boxes xvi

Preface xvii

About the fourth edition xix

Acknowledgements xxi

Part I Preparing the ground and reviewing the literature

1 Introduction 3

The meaning of research 3

Rationale for conducting a dissertation 3

Aim of conducting a dissertation 4

Objectives of the dissertation 4

Transferable skills of conducting a dissertation 5

Purpose of the book 5

Plan of the book 6

Reference 9

2 Selecting a topic and writing the dissertation proposal 10

Choosing the topic 10

The dissertation proposal 16

References 23

3 Reviewing the literature 24

Rationale for undertaking a literature review 24

Knowing the sources of information 26

Academic research journals (refereed) 26

Refereed conferences 28

Understanding how the library works 33

Knowing the search engines related to the built environment 35

Collecting existing knowledge on the subject, systematically organising and summarising the literature	36
Reading and note-taking	37
Designing the contextual framework of the literature	37
Writing up and critical appraisal of your literature review	43
Summary	52
References	52
Additional reading	52

Part II Research design and methodology

4 Approaches to data collection	55
Research strategy	55
Quantitative research	55
Qualitative research	57
Attitudinal research	58
Exploratory research	58
Example – explaining or seeking to understand	59
Comparing quantitative and qualitative research	59
The concept of a theory and building up your theoretical/ conceptual framework	59
Steps for building up your theoretical framework	61
Approaches to data collection	64
Fieldwork research	64
The survey approach	65
The case study approach	66
Problem-solving approach (action research)	66
The experiment (mainly for civil engineering research)	67
Secondary data collection	67
Statistical format	67
Descriptive documents	68
Summary	69
References	69
Additional reading	69
5 Techniques for data collection	70
Postal questionnaire	70
Personal interview	73
Unstructured interview	74
Semi-structured interview	74
Structured interview	75
Sampling	76
Random sampling	77

	Selected sampling	77
	Summary	79
	References	80
	Additional reading	80
6	Questionnaire construction	81
	How to construct a questionnaire	81
	Types of questions	85
	Factual questions	86
	Opinion survey questions (subjective measurement)	88
	Criteria for constructing a questionnaire	101
	A pilot study	103
	Covering letter	104
	Summary	105
	References	106
	Additional reading	106
 Part III Analysis and presentation of the results		
7	Measurements and probability	109
	Level of measurement	109
	Nominal scale	110
	Ordinal scale	111
	Interval scale	112
	Ratio scale	112
	Probability statement	112
	Summary	114
	Additional reading	114
8	Analysis of the results	115
	Exploratory data analysis (open-ended questions)	115
	Coding open-ended questions	116
	Recording the information	117
	The descriptive statistics method	119
	Frequency distribution	119
	Tabulation	120
	Bar charts/histograms	121
	Pie charts	121
	Measurement of central tendency	122
	Measurement of dispersion based on the mean	123
	The inferential statistics method (also known as bivariate statistical analysis)	124
	Data analysis using the SPSS (Statistical Package for the Social Sciences) software	140

Summary	144
References	145
Additional reading	145

9 Structuring and writing the dissertation 146

Typical dissertation structure	146
Writing the abstract	147
Writing the introduction chapter	148
Section 1 – The research rationale	148
Section 2 – Research goals	151
Section 3 – Outline methodology	151
Section 4 – The research road map	154
Section 5 – Dissertation structure	154
Writing the literature chapters of your dissertation	155
Writing the chapter on questionnaire design and methodology	163
Section 1 of the methodology chapter: Scope of chapter	164
Section 2 of the methodology chapter: Statement of research aim	164
Section 3 of the methodology chapter: The research methodology	164
Section 4 of the methodology chapter: Rationale of the research questionnaire	166
Section 5 of the methodology chapter: The research sample	170
Example 2 – Writing up the research sample section based on interviews	171
Section 6 of the methodology chapter: Method of analysis	175
Writing the chapter on analysis of the results	175
Section 1 of the result chapter: Scope of chapter	175
Section 2: Analysis of the results, part 1 (the descriptive method)	176
Presenting postal survey supplemented by interviews (example of writing-up style)	178
Presenting results based purely on interviews (example of writing-up style)	180
Section 2: Analysis of the results, part 2 (test of correlation and/or association)	183
Writing the conclusion chapter	192
Writing the references/bibliography	193
What does ‘referencing’ mean?	193
How many references do I need to make?	198
What is plagiarism?	198
How do I incorporate references and quotations into my dissertation?	198
Compiling the reference list and bibliography	199

Summary	202
References	202
Additional reading	203
10 Dissertation supervision and assessment	204
Getting started	204
The role of the supervisor	205
What is not the role of the supervisor?	205
Planning your dissertation	206
Dissertation supervision log	206
Dissertation assessment: Qualities in assessing at MSc level	208
Descriptions of qualities	209
Degree of difficulty	210
Summary	219
Reference	220
Additional reading	220
 <i>Appendix 1</i>	 221
 <i>Appendix 2</i>	 240
 <i>Appendix 3</i>	 246
 <i>Appendix 4</i>	 250
 <i>Appendix 5</i>	 251
 <i>Appendix 6</i>	 273
 <i>Appendix 7</i>	 284
 <i>Index</i>	 287

Figures

1.1	Research process diagram	7
2.1	Contents of Chapter 2	11
2.2	A diagram showing the narrowing down of the research topic	12
2.3	Example 1 of a typical methodology road map	21
2.4	Example 2 of a typical methodology road map	22
3.1	Contents of Chapter 3	25
3.2	Example of designing the contextual framework of the literature	42
A	Sustainable development	45
4.1	Contents of Chapter 4	56
4.2	A diagram showing the relationship between an independent variable (size) and the dependent variable (overrun on time)	61
4.3	A diagram showing three independent variables and one dependent variable	62
4.4	A diagram showing three independent variables, one intervening variable and one dependent variable	62
4.5	Example of a complete theoretical framework related to Proposal 2 in Appendix 1	63
5.1	Contents of Chapter 5	71
6.1	A diagram showing that during the research process, research objectives are translated into specific questions	82
6.2	Contents of Chapter 6	82
6.3	Example of postal survey covering letter	105
7.1	Contents of Chapter 7	110
8.1	Contents of Chapter 8	116
8.2	Accidents rates by occupation to employees in the construction industry	122
8.3	Breakdown of procurement methods in the UK	122
8.4	A typical normal distribution curve	125
8.5	Examples of correlation scatter diagrams	138
8.6	Regression analysis and Pearson product–moment correlation coefficient	143
9.1	Contents of Chapter 9	147
9.2	The ‘theoretical framework’ of this dissertation	153

10.1	Example of typical dissertation work schedule	207
10.2	Example of a typical log form	208
A6.1	Timeline showing frequency of when respondents first heard about sustainable construction	281
A6.2	Frequency of drivers for sustainable construction stated unprompted by respondents	282
A6.3	Drivers for sustainable construction with priority ranking stated by respondents unprompted	282

Tables

3.1	Example of a summary note-taking of literature review	38
4.1	Example of an attitudinal question into the ranking of factors that motivate operatives to work harder on-site	58
4.2	Some differences between quantitative and qualitative research	60
5.1	Structured interview questions to clients on their experience with two types of procurement methods, namely, Management Contracting (MC) versus Traditional Contracting (TC)	78
5.2	Comparison between a postal survey and interview technique	79
6.1	Section of a questionnaire related to marketing	84
6.2	Examples of factual questions related to construction project management	89
6.3	Which of the following problems do you think need to be overcome in relation to the project management system?	92
6.4	Here are some well-known procurement methods that can be used to deliver projects according to client criteria	93
6.5	Here are a number of factors which can have an impact on site productivity	94
6.6	The following statements are related to job satisfaction at work	96
6.7	On a scale out of 10, how would you rate the achievements of the following 13 policies of the NPPF to your local town plan?	98
6.8	The following are a number of criteria which are commonly applied by clients of the building industry in assessing the performance of their projects	100
6.9	Would you please indicate, in priority order, which of the following factors you find important in being satisfied with your job	100
6.10	In your view, what are the most serious factors causing accidents on construction sites?	101
6.11	Think of your leader and describe him/her by completing the following scale. Place an 'X' in one of the eight spaces according to how well the adjective fits your leader	102
7.1	Categorisation table of companies using project management	110
7.2	Ordinal ranking scale	111
7.3	Quality of product scores	111
8.1	Example of coding open-ended questions	118

8.2	Example of a data summary form (see also section 3 in Appendix 5: SPSS data entry)	119
8.3	Frequency distribution of marketing philosophy	120
8.4	Level of clients' satisfaction on the performance of time of construction management contracts	120
8.5	An example of a typical frequency distribution of injuries to employees in the construction industry based on secondary data gathered by the HSE's Field Operations Division	121
8.6	Cost per square metre obtained from design and build projects and traditional projects	129
8.7	Business philosophy and company performance	130
8.8	Contingency table between business philosophy and financial performance	132
8.9	Average ranking of UK workers and Indonesian workers to factors influencing job satisfaction	135
8.10	Ranking of head office personnel and site managers to factors influencing site productivity	136
8.11	Scores on variables X and Y for 12 subjects	138
8.12	Construction leanness scores and productivity data	142
9.1	A general guide for writing references	194
10.1	University of West London – Assessment grid	211

Boxes

3.1	Example of writing a literature chapter	44
9.1	Abstract (example of writing-up style)	148
9.2	Example of writing the rationale section of the introduction chapter	149
9.3	Example of writing the research goals in Chapter 1 of your dissertation	151
9.4	Example of writing an <i>outline</i> methodology in Chapter 1	152
9.5	Example of a dissertation structure	154
9.6	Literature review (example of writing-up style)	157
9.7	Example of writing the methodology section	164
9.8	Example of writing the rationale section of the research design and methodology chapter	166
9.9	Example 1 – Writing the research sample based on a large survey	170
9.10	Example 2 – Writing the research sample based on interviews	171
9.11	The characteristics of the interview sample that was conducted by Zoe Mulholland (2010)	172
9.12	Presenting the results of a postal survey (example of writing-up style)	176
9.13	Example of presenting a postal survey supplemented by interviews	179
9.14	Example of presenting a postal survey supplemented by interviews	180
9.15	Example 1 – Presenting results using inferential method of analysis (manual calculation)	183
9.16	Results of curvilinear regression analysis	189
10.1	Key words	210
10.2	Example of a supervisor's feedback on an outstanding dissertation	213
10.3	Example of a supervisor's feedback on an average quality dissertation	215
10.4	Example of a supervisor's feedback on a poor dissertation	217

Preface

This book has grown out of my involvement in supervising BSc and MSc dissertations as well as my accumulated experience of teaching research methods to postgraduate students at London South Bank University. Over the years, I became convinced that construction students needed something akin to research methods lectures, in addition to tutoring, that could provide them with guidance on basic research techniques and how to write a dissertation. There have been an enormous number of textbooks which presented research design and methodologies but few, if any, are related to built environment studies.

This book approaches dissertation research and writing as a process, involving a sequence of learnable activities. Each activity prepares the student for the next step and some steps are best taken before others. I have divided the process of dissertation research into three parts, which are best carried out in the order presented.

Part I is 'preparing the ground'. It involves:

- 1 identifying the problem (including narrowing and clarifying the problem);
- 2 writing a proposal (including the aim, objectives, hypothesis and/or key research questions);
- 3 reviewing the literature (including critical appraisal of literature).

Part II is 'research design'. It involves:

- 4 approaches to data collection (deciding whether to use a survey or a case study);
- 5 techniques for data collection (deciding whether to use the post or go for interviews);
- 6 constructing and sampling the questionnaire.

Part III is 'analysis of the results' and producing the dissertation. It involves:

- 7 measurement of data;
- 8 analysis of data (including interpretation and discussion of results);
- 9 structuring and writing the whole dissertation;
- 10 dissertation supervision and assessment.

This book is aimed specifically at BSc and MSc students who are embarking on research as part of their degree. It will provide students with a clear explanatory text which is supported by numerous examples illustrating good practice. Students of built environment subjects such as construction management, facility management, building surveying, quantity surveying, town planning, estate management and civil engineering will find this book of use. It will also be of use to anyone else involved in research work.

About the fourth edition

It has been very pleasing to receive the many complimentary and positive comments from reviewers and users of the first and second editions. These comments have been most appreciated and provided the encouragement for, and formed the basis of, the fourth edition.

The fourth edition covers wider built environment disciplines but retains the same underlying theme, aims and approaches. It also carries forward the same basic framework with the same sequencing and ordering of the chapters.

There is, however, a general review and update of material and references. Moreover, the rationalisation of the text recognises the need for new sections such as the following:

Chapter 2

- Examples of dissertation topics.
- Examples of writing a working title.
- A further example of a typical methodology road map.

Chapter 3

- List of refereed journals related to courses related to built environment.
- Links to databases in built environment.
- Example of summary note-taking of literature review.
- Using the 'Zotero' software tool to organise the literature.
- Example of developing a contextual framework of the literature.
- A new example of writing a literature chapter.

Chapter 4

- Steps for building up a theoretical framework with examples.

Chapter 5

- The SurveyMonkey tool.

Chapter 6

- Update to examples of factual questions related to built environment.
- Update to examples of attitudinal questions related to built environment.

Chapter 9

- New example of writing the rationale section of the introduction chapter.
- New example of writing the research goals.
- New example of writing the methodology chapter.
- New example of writing the dissertation structure.
- New example of writing a literature chapter.
- Example of presenting the 'theoretical' framework.
- Example of writing the rationale section of the research design and methodology chapter.
- Example of writing the research sample.
- A general guide to referencing.

Chapter 10

- Example of a marking grid for dissertation.
- Examples of supervisors' feedback.

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References to sources of information and material are given as accurately as possible throughout this book. Apologies are expressed if any acknowledgement has inadvertently not been recorded.

Finally, I wish to express my gratitude to the staff of Routledge who masterfully crafted the production of this book.

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Part I

Preparing the ground and reviewing the literature



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1 *Introduction*

This book serves as a guide and learning support document in the preparation of a dissertation for honours undergraduate students and for students undertaking dissertations on taught master's degrees. The book focuses specifically on built environment subjects with a special emphasis on construction-related degree programmes. It covers issues such as the selection of a dissertation topic, writing a proposal, conducting a literature review, selecting the research approach, devising research instruments, collecting information, analysing and presenting information and producing a well-researched and written dissertation.

The meaning of research

To set the scene for this book, I begin by defining the meaning of 'research'. The *Concise Oxford Dictionary* defines research as 'careful search or inquiry; endeavour to discover new or collate old facts etc. by scientific study of a subject; course of critical investigation' (Soanes and Stevenson, 2004). From this, we can conclude that the word 'research' may be used interchangeably with 'inquiry', 'study' or 'investigation'. And yet something more is implied: the inquiry, study or investigation must be conducted in a careful, scientific and/or critical manner. Others have added 'methodical' and 'systematic' to this list of adjectives. It does not really matter which combination of words is chosen (systematic inquiry or critical investigation) so long as both words are kept clearly in mind.

In addition to a specific method of inquiry, a research project has to have an aim or objective. In general terms, the aim of all research is to expand knowledge and develop a product or a message. But we do not simply want a list of facts. A good piece of research will focus on certain aspects of a topic. It will seek to answer specific questions, solve a particular problem or test a hypothesis. The issue(s) to be addressed must be clearly stated at the outset in the objective(s) of the research proposal.

Rationale for conducting a dissertation

The rationale for including a dissertation as a major component of the BSc and MSc courses is that it provides for the development of intellectual skills of a kind that is not fully facilitated on the other components or modules of the teaching course. The dissertation requirement accords with the educational philosophy of the BSc and MSc courses in that it requires students to take responsibility for

4 Introduction

their own learning, specifying and defining the task and defining the learning outcomes. Therefore, the dissertation provides the opportunity for you to undertake an independent piece of research, investigating in depth a subject in which you have a particular interest and which is of your own selection. Normally, you will submit a dissertation of between 12,000 and 15,000 words and sometimes 20,000 depending on the requirement of your university.

There are two main phases. First, you propose a subject area and, during the course of the lecture sessions, develop a dissertation proposal, which is submitted for approval. Second, after approval, you are assigned to work under the supervision of a selected member of the academic staff and submit a dissertation according to the submission dates specified by your university.

Aim of conducting a dissertation

To undertake an independent piece of research of a demanding nature on a subject related to a particular discipline and then write an academic report. It has a beginning (proposal and literature), a middle (research design and methodology) and an end (analysis of findings and conclusions). The purpose is to deliver a 'product' or a 'message' that has an impact on other researchers and the industry as a whole, such as devising a new methodology, reaching a solution to a particular problem, developing a theoretical model, designing a particular system, delivering a guideline and the like.

Objectives of the dissertation

- 1 To enable students to investigate, in depth, a subject in which they have a particular interest and is, usually, of their own selection.
- 2 To provide students with an opportunity to stretch their intellectual and technical skills.
- 3 To encourage students to develop new forms of analysis, conclusions and policies which may make an original contribution to the knowledge in the field of study concerned.
- 4 To encourage both clarity and depth of thought in that the project involves analysis of a problem and the development of a logical sequence of ideas.
- 5 To provide students with an opportunity to learn how to acquire detailed information on a particular issue. It will involve students in the use of bibliographies, libraries and library reference systems. It will involve their using primary sources of data such as a census and the collection of new data through interviews, surveys and archival research.
- 6 To identify and critically analyse issues with reference to relevant arguments and evidence.
- 7 To identify and critically analyse issues with reference to pertinent arguments and evidence and formulate 'contextual' and 'theoretical' frameworks.
- 8 To assemble information and data from a variety of sources and discern and establish connections.

- 9 To evaluate current procedures and approaches, investigate routine and unfamiliar problems and apply professional judgment in order to devise solutions and/or recommend appropriate actions.

Transferable skills of conducting a dissertation

On completion of your dissertation, you should be able to:

- 1 Effectively communicate complex ideas, information and data by written and sometimes oral and visual means in a form appropriate to the intended reader and/or audience, with appropriate acknowledgement and referencing of sources.
- 2 Apply statistical and numerical skills at an advanced level.
- 3 Use information and communications technology (ICT) to locate and access opinions, information and data from a wide range of sources and communicate information to others.
- 4 Exercise initiative and personal responsibility in employment and possess the independent learning ability required for continuing professional development.

Purpose of the book

This book fulfils a need within the construction industry by providing students with a useful guide to undertake a piece of research. The construction industry is now developing a community with a new attitude to research. Although a number of texts are available on research design and methodology, there is little applied in construction. This book is specifically designed to assist:

- 1 Honours undergraduate students and MSc (taught Masters) students in built environment conducting a dissertation or final year research in construction such as construction management, construction project management, quantity surveying, building surveying, architecture and facility management. However, as the book follows the interrelated process of conducting research, it can also be useful to undergraduate and postgraduate students of related construction disciplines such as civil engineering, town planning and estate management. It covers issues such as the selection of a dissertation topic, writing a proposal, conducting a literature review, selecting the research approach, devising research instruments, collecting information, analysing and presenting information and producing a well-researched and written dissertation.
- 2 Students in the social sciences and people concerned with social surveys.
- 3 This book also provides a useful 'foundation' guide to students who are about to start an MPhil/PhD programme. However, it is not designed to provide a manual for PhD students, nor does it provide the type of analysis that a doctorate deserves.

Plan of the book

As mentioned earlier, this book will follow the interrelated stages of conducting a piece of dissertation research. Figure 1.1 illustrates the research process stages with their corresponding chapters. This book is therefore composed of ten chapters.

Chapter 1: Introduction

This chapter provides a general introduction to dissertation research and outlines the main aims and objectives of the book.

Chapter 2: Selecting a topic and writing the dissertation proposal

The choice of a dissertation topic usually comes from your interest in and value of a particular subject, which are usually interrelated. The interest and value will eventually be developed into a series of questions, which you will be keen to find answers to. Selecting a topic is discussed in the first part of the chapter. After selecting the subject of your dissertation, you need to formulate a proposal that should contain a rationale, research goals (aim, objectives, hypothesis or key questions), outline methodology and a programme of work. The extent and degree of details for the dissertation proposal are given in the second part of this chapter.

Chapter 3: Reviewing the literature

This activity will most likely be carried out throughout the whole research process but more extensively at the earlier stages of the research. It basically involves reading and critically appraising what other people have written about your subject area. The chapter also gives details on how to conduct a systematic literature search and design a 'contextual' framework for the literature.

Chapter 4: Approaches to data collection

After deciding on the topic that you wish to study and having conducted an extensive literature search, you will be in a position to design your research. Designing the research involves the following activities:

- 1 Deciding on the type of data that has to be collected (quantitative or qualitative data). This chapter provides further description of these terms.
- 2 Confirm the method of data collection (i.e. should you conduct a survey or a case study?). The chapter describes each of these methods in great detail.
- 3 Designing the 'theoretical' framework for your research (if applicable).
- 4 Deciding on the techniques for data collection (i.e. should you gather the data by interviews, by telephone or by postal questionnaire?).
- 5 Designing your sample. The research design should tell you how your sample needs to be drawn, to whom you should target your questionnaire and how many to issue.

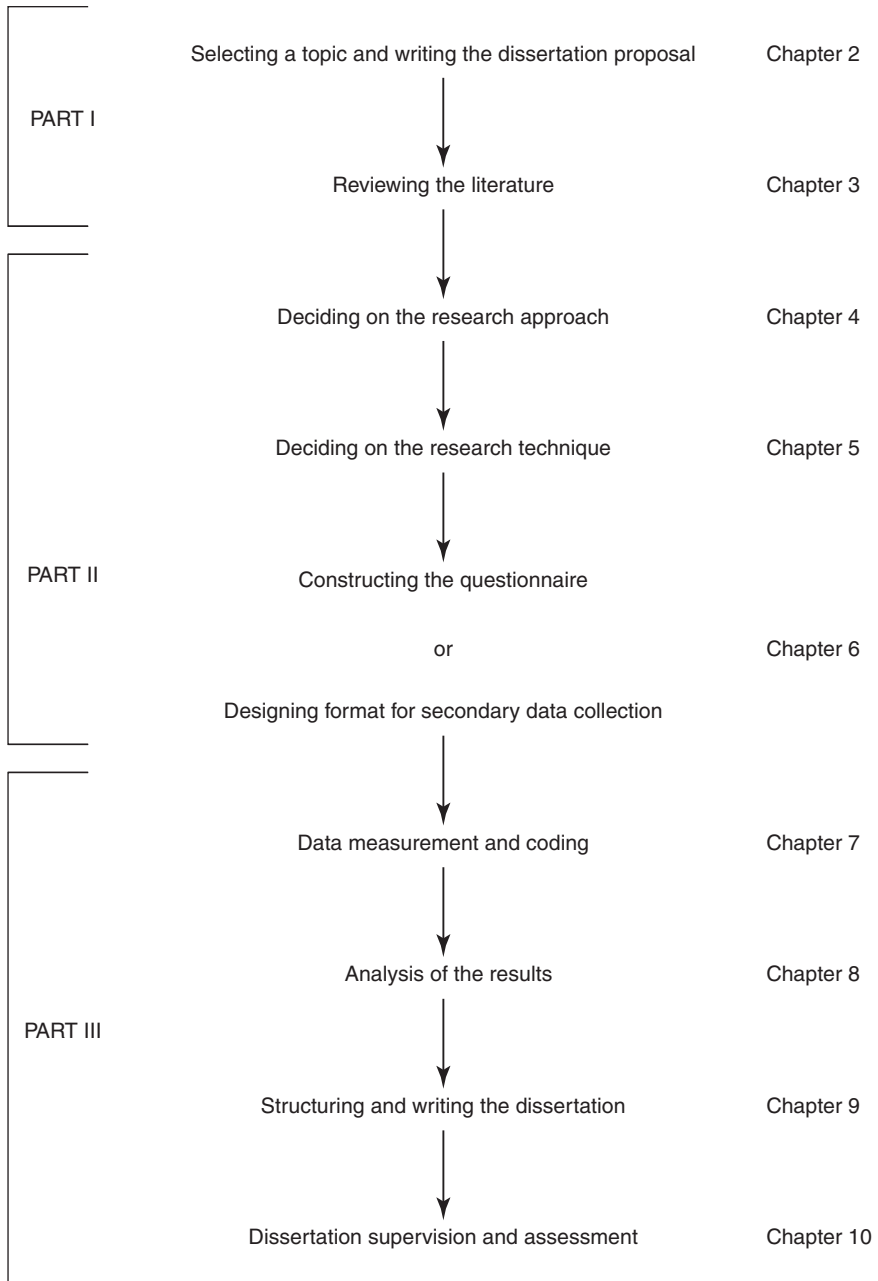


Figure 1.1 *Research process diagram.*

Chapter 5: Techniques for data collection

After deciding on your research approach, you will be involved in collecting the data for your research study. If you are collecting ‘primary’ data (data collected at first hand), you need to undertake certain activities such as inviting your sample to complete the questionnaire, preparing the data summary sheet or taking whatever action is required for your fieldwork. If you are collecting ‘secondary’ data (data gathered from some other sources), you need to contact those organisations that store the data (if not stored in the library), such as the state and its agencies, statistical offices such as Her Majesty’s Stationery Office (HMSO) and the Health and Safety Executive (HSE). Chapter 5 explains the main features of the postal survey and the interview technique, together with showing the advantages and limitations of both techniques.

Chapter 6: Questionnaire construction

This chapter describes and illustrates methods of questionnaire construction: the content of questions, types of questions, question format and the sequence of questions.

Note to students

After constructing your questionnaire, it is strongly recommended to conduct a trial run on the questionnaire before circulating it to the whole sample. This trial is called a ‘pilot study’. The pilot study involves testing the wording of the questions, establishing the length of the questionnaire, avoiding ambiguous questions and suggestions for analysing the data, as well as testing the technique selected for collecting the data. In large research projects such as an MPhil or PhD, the researcher should even try to analyse the results of the pilot study to ensure the reliability of data collected. Chapter 6 gives further details on the pilot study.

Chapter 7: Measurements and probability

This chapter prepares the ground for analysis of your results. It is concerned with the nature of measurement in research. It includes the explanation of the four levels of measurement: nominal, ordinal, interval and ratio. The main point to recognise about measurement is that each level of measurement requires a certain type of analysis that is more appropriate than others. This chapter will also explain the meaning of the term ‘probability’ and its relevance to the analysis of your results.

Chapter 8: Analysis of the results

Once you have collected all the completed questionnaires and/or gathered the archival data, you will be ready for the next stage: the analysis of the data and determining the direction of the study. This stage involves processing the

data, putting answers to categories and generally finding out the pattern of the responses. Some results require statistical analysis, as in the case of a large sample survey, and some results involve finding out the trend of the responses, as in the case of in-depth interviews. Chapter 8 gives details on how to analyse the results both manually and with the use of the SPSS (Statistical Package for the Social Sciences) software.

Chapter 9: Structuring and writing the dissertation

After you have completed the literature review and analysed the data, you will be ready to write up the whole dissertation. Writing your dissertation involves reporting and critically appraising the literature review, the analysis of the data and the discussion and interpretation of your findings. Bear in mind that the writing-up stage can overlap with any of the above activities and may start as early as the literature review stage. Chapter 9 provides details on structuring and writing a typical dissertation project.

Chapter 10: Dissertation supervision and assessment

Once you have decided on the topic of your study and your proposal gets approved, your department should then appoint a personal supervisor for you. It is therefore important to know the role of your supervisor and what can be expected from him/her.

This chapter will discuss the basics of what you should expect from your supervisor. It first explains what the role of the supervisor is and what it is not. Second, it illustrates how you may plan your dissertation and finally how you would expect to be assessed in the end.

Reference

Soanes, C. and Stevenson, A. (2004) *Concise Oxford English Dictionary*. Oxford University Press, Oxford.