Research Methods in Information

SECOND EDITION

Alison Jane Pickard

With contributions from
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and Andrew K. Shenton

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Preface to the second edition

I'd like to start this preface with a huge thank you to the generous and kind individuals who reviewed the first edition. Stupidly, it hadn't occurred to me when writing it that it would be 'out there' and subject to the usual scrutiny all texts are exposed to; the realization dawned when a close friend and colleague told me to read the review in the online journal *Information Research*. It took me a while to click the link he had sent in the e-mail, I was genuinely terrified! To see the words 'I have found it! Finally, I have found what I was looking for, since I started working with research students! A book that makes it clear' (Maceviciute, 2007) made my heart jump and I decided that would be the only review I read. But of course it wasn't. I hope this second edition goes some way to address the things that people thought were missing from the first – thankfully there weren't many. In fact, I'm not entirely sure it was time for this but my publishers thought differently and I trust their knowledge and understanding. The most significant additions are the two guest chapters included here by close colleagues of mine: Professor Julie McLeod, Sue Childs and Elizabeth Lomas have provided an excellent chapter on Data Research Management, which is part of the output of their JISC-funded DATUM project. Dr Andrew Shenton has also contributed a chapter on the analysis of existing documents which adds another dimension to the text. My work has primarily been one of updating and restructuring in response to comments from colleagues and students, as well as my own desire to add or remove certain things. I hope I have addressed most if not all of the comments and I hope this second edition is useful to the current and next generation of LIS researchers.

Alison Jane Pickard

Reference

Maceviciute, E. (2007) Review of: Pickard, Alison Jane, Research Methods in Information, London, Facet Publishing, 2007, *Information Research*, **12** (4), review no. R277. Available at: http://informationr.net/ir/reviews/revs277.html.

Acknowledgements

These acknowledgements remain largely unaltered, apart from an update to thank all those who have commented on the first edition and made suggestions for the second and colleagues I now have the privilege to work with. This time I am privileged to include two chapters contributed by colleagues I have worked with for a number of years and who have contributed to my own thinking on research methods as well as the specific contribution they have made here.

My greatest source of inspiration in beginning it was Pat Dixon; the seed was planted a decade ago when she handed me a research methods text I had never seen and sent me down 'the road less travelled'. She taught me that research isn't just about the end product, the discovery – it's also about the journey. Pat is a born teacher; she instinctively knows how to get the best out of people and how to urge them on to reach their full potential, even when they doubt themselves. As a teacher, and as a friend, I owe her a great deal.

Creating this work has been aided and abetted by the many students, past and present, who I have had the great privilege to guide through their dissertations. I thank them all for the contribution they have made and the research experiences they have shared with me, many of which I'm sharing with you in this book. The practical exercises in the book are based on the learning experiences of my students, and have gone through many and varied adjustments based on their experience of actually engaging in them. At time of writing this second edition I have just introduced a Professional Doctorate and the experience of the first cohort on that programme has also fed into this revised text; thanks to Biddy, Ian, Matt, Susannah, Jackie, Alan, Shelagh, Graeme, Steve and Phil.

I think I have been extremely fortunate in having the best editorial team there is – only they could have got this out of me! Helen Carley, Lin Franklin and Jenni Hall are possibly the most professional and accessible editors a person could have; thank you all for your faith, patience and guidance. I have to thank Elspeth Hyams for introducing us.

Becky Strachan, Colin Creasy and David Bell have made the last five years a joy of challenge, learning, development and creativity and as we sit on the cusp of yet another adventure I look forward to travelling with them. Becky, Colin, David, Julie McLeod,

David Wainwright, Tom Prickett, Sue Childs, Matt Pointon and Alistair Sambell have not only tolerated my exuberance and passion, they have actually encouraged it! Thank you all. I would also like to thank Elena Corradini and Anna Maria Tammaro for their work in getting the first edition translated and published in Italian.

I must acknowledge my gratitude to the authors of all the books and articles that have influenced my thinking, especially to all of those I have had the great fortune to meet and discuss my work with, receiving invaluable comments and suggestions.

My family are responsible for giving me the security, confidence and love we all need on a scary journey. My parents always have the same answer when a new challenge comes along and I'm unsure of my ability to rise to it: 'Yes, you can', they say, and after a while you have to believe them! This book is dedicated to my family: my daughter Zoë (it was because of her all of this began); my parents, Muriel and Bart, for not only saying 'yes, you can', but for providing the support I needed to make it happen; my husband Ian for being there and never shrinking under the weight of my more stressful moments; and my best friends, Dawn and Dot for always loving me and never giving up on me. My family has been tolerant beyond the bounds of reasonable expectation and for this I am eternally grateful.

Alison Jane Pickard

Introduction

> Research is formalised curiosity. It is poking and prying with a purpose.
>
> (Hurston, 1996, 143)

The purpose of this handbook is to provide a reference guide to the research process for students and practitioners in the fields of information studies, communications, records management, knowledge management and related disciplines. The importance of research within these disciplines should not be underestimated, as 'research skills are a prerequisite for those who want to work successfully in information environments, an essential set of tools which enable information *workers* to become information *professionals*' (Harvey, 2000, xiv). Knowledge and experience of research is a fundamental part of what makes the 'information professional'. Harvey provides a number of reasons why research is so important in the workplace; not least of them is the need to meet the ever-increasing requirements of accountability of services. In order to maintain dynamic and appropriate services we need to be constantly examining what we do and how we do it. When attempting to improve these services, research often offers the answer; research can help us identify problems in the workplace and very often provide solutions to those problems (Harvey, 2000).

Two years after the publication of the first edition of this text the 'Library and Information Science Research Coalition' was formed as a three-year project to: 'bring together information about LIS research opportunities and results; encourage dialogue between research funders; promote LIS practitioner research and the translation of research outcomes into practice; articulate a strategic approach to LIS research; promote the development of research capacity in LIS.' (LIS Research Coalition, 2012). This initiative has highlighted the significance of research methods to the LIS community and the need to continue to develop professional research excellence.

These are very practical, 'real' benefits of research but there is also the need to increase the body of knowledge that makes up the profession, to continue to engage in the questioning process that allows the professional to grow. This should never be underestimated. Even if information professionals are not active researchers all of the time, it is an inescapable fact that they must certainly be intelligent and informed consumers of research. In a recent survey, which scoped practitioner research in the

library and information profession within the UK, McNicol (2004) highlighted the ways in which research is used by practitioners to enhance service delivery and provision. These include benchmarking exercises, service planning, strategic development, refining existing services, improving effectiveness of service delivery, demonstrating value to stakeholders, marketing, publicity, mapping user behaviour, planning accommodation, making operational changes such as altering opening hours, collection development, and more.

This handbook is designed to be of continuing use throughout the student and professional lives of its readers. In this book I aim to provide insight into the research process and lay before you the choices and opportunities available to you in your research endeavour. The book draws on established research practice in a number of disciplines. Because of the diversity of information and communication related subjects, it is necessary to have some understanding of research in sociology, psychology, education and computing. From the variety of research methods, data collection techniques and methods of analysis discussed in this book it is hoped you will be in a position to make an informed choice on the approach best suited to your own context, goals and experience. Once these choices have been made you can go on, using the recommended texts in each of the chapters, to develop your understanding of the particular approach you have designed, based on the choices placed before you here. You may well establish your own preferred approach to carrying out research, but always try to stay open to other possibilities, depending on the questions being asked. A second purpose of this book is to share with potential and practising researchers the sheer joy of exploring the world around us by whatever means is appropriate to the subject under investigation. I see research as a grand adventure and researchers as intrepid explorers seeking out their own truth, however small the question may be. Although many of you will be students reading this as part of your, in most cases, compulsory research project, it is still hoped that the experience will be a good one, if not a splendid one. The joy of research cannot be bestowed on an individual but it is sincerely hoped that this book will go some way to planting the seed and encouraging at best that joy, and at least the inquisitive nature that defines the researcher. I was once told that the greatest quality of a good researcher was to have infinite curiosity and constant desire to discover the as yet unknown. This book cannot create that curiosity (although I would love to think that it might) but it can provide direction in designing ways to satisfy it and I hope it will encourage you to question how we question the world around us. Although there are tried and tested research strategies laid out before you there is always more to know and more ways to know it. Here are some options, but our knowledge of investigative strategies continues to expand, hence this second edition; this is not a definitive collection of those strategies, it is a guide to what we already know and what has already been done. Continuing to explore potential methods can only increase our ability to understand our environment. I would encourage you to take a critical approach to this text and, if the desire is there, to experiment with these ideas in whatever way you see fit within your own research context.

This handbook is based on my own experience of the research process and teach-

ing that process to undergraduate, postgraduate and doctoral students over a number of years. One of the greatest frustrations faced by those students, and myself, is the level of disparity in the use of terminology within the research methods literature. Terms such as 'method', 'technique', 'strategy', 'approach' and so on are applied by different authors in a multitude of ways, discussing very different things. Much of this inconsistency in use of terminology is the result of the multidisciplinary nature of the research approaches which have been applied to our own discipline. (See Budd, 2001, for a detailed discussion of the philosophical background to research in information and communication disciplines.) Like all researchers, I have my own view of the 'best' type of research but I hope there will be no hint of that preference in this book. There are two reasons for this: first, I have no desire to push you down a particular road against your natural instinct and, second, I am still exploring and I reserve the right to change my mind!

Setting the context

As I have already mentioned, there is much debate about the terminology of research and I have found that this does more to get in the way of good research than it does to encourage it. With that in mind the structure of this book is based on a framework of the research hierarchy I use with my students. The debate on whether a case study is a research method or a research strategy will no doubt continue for longer than I may be privileged to engage in that debate. The emphasis here is on the 'doing' rather than on the 'debating'. That said, it is impossible to ignore the philosophy and theory behind the research process but here that will only be introduced as context; any reader who is stimulated by this debate is strongly encouraged to follow the leads offered here and continue to read in more depth around the issues. One potential solution to stripping away some of the confusion is to develop a research hierarchy that provides a framework for designing and conducting research studies. There will no doubt be many who disagree with the structure offered here, even if that disagreement is related only to the use of terminology. I do not offer this as the *only* structure, it is offered as *a* structure that has worked for many neophyte and experienced researchers. The structure of the text follows the research hierarchy outlined below.

The research hierarchy

I would like to establish the way I use some standard research terms and the connections between those terms from the outset. Figure 0.1 describes the connections and relationships between various levels of the research hierarchy using work by Guba and Lincoln (1989) and building on that to include all major elements of a research study.

A research paradigm

Whether we are concerned with the philosophical forces driving the research or not, all research models begin at that philosophical level which defines the paradigm. Here I am using the interpretation of paradigm originally provided by Kuhn (1970) as a means of viewing the world, influencing but not controlling the assumptions and

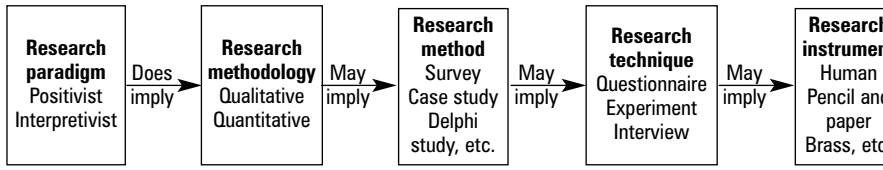

Figure 0.1 The research hierarchy (Pickard, 2002; Pickard and Dixon, 2004)

direction of research. This interpretation views paradigms as 'the entire constellation of beliefs, values, techniques, and so on shared by members of a given [scientific] community' (Kuhn, 1970, 146) and they 'provide the concrete puzzle solution or exemplar of how to solve a scientific problem' (Seale, 1998, 12). A paradigm, then, comes before the theoretical perspective of the research. It is the 'world view' that is accepted by members of a particular scientific discipline which guides the subject of the research, the activity of the research and the nature of the research outputs: 'Indeed, fundamental to the concept of the paradigm is its pre-theoretical and, in the final analysis, metaphysical character of a "guiding vision", "a view of the world", which shapes and organizes both theoretical reflection and empirical research and, as such, precedes both' (Corbetta, 2003, 11).

A research paradigm does imply a methodology: it is very often an individual's view of the world that dictates the nature of the research they engage with. Ideally it is the question that should dictate the nature of the 'asking', but very often this is not the case. Positivist thinking is associated with quantitative research, interpretivist thinking with qualitative research and postpositivist thinking with a dualism that attempts to include both methodologies. It remains my belief that postpositivism is the paradigm under which mixed methods research (MMR) functions. Having explored this 'emerging' approach in great detail as both a PhD examiner and a reviewer, I am confident that it can be aligned to the characteristics of postpositivism outlined in Table 1.1 (see p. 7). I continue to agree with Giddings (2006, 195), that it is 'a pragmatic research approach that fits most comfortably within a postpositivist epistemology'.

Research methodology

This is the theoretical perspective of the research, that is the overall nature of the research activity, although the term is applied to many aspects of the research process in various disciplines. I believe there are only two fundamental methodologies: qualitative or quantitative. However, a methodology does not necessarily imply a particular research method; all too often assumptions are made concerning particular research methods that are essentially erroneous. A methodology is perspective, the angle the researcher wishes to take on the question being asked. An example of this would be examining use of a service by the users of that service; it may be that the angle is one of 'how many?', 'how often?' or 'when?'; this would be a quantitative angle on the question. On the other hand the angle could be 'why?', 'how?' or 'how do they feel about it?'; this then would be a qualitative angle. This is an over-simplification of these def-

initions, which is intended to show the elementary difference between the two, not to provide any in-depth discussion. That will follow in Chapter 1 and hopefully this can also guide those who want to take a mixed-methods approach; providing the background to each will assist in the combining of the two as long as this is done with caution and care. This perspective or angle does not necessarily imply a particular research method, although clearly there are times when it must.

Research method

This is the bounded system created by the researcher to engage in empirical investigation – the overall approach, often referred to as a 'strategy'. For us, for now, the term 'method' is being applied in this way. Models of the research process rarely make any distinction between research methods and research techniques but take for granted some implicit understanding of the distinction. This is not the ideal approach to a rigorously constructed research design. A research method is not defined by the techniques employed within it to harvest data, but by the driving purpose of the investigation. Research methods include: case study; survey; action research and so on.

Research techniques

These are the individual data collection techniques applied within the method. The most obvious example of lack of distinction between method and techniques is the use of the terms 'survey' and 'questionnaire'; very often the two are used interchangeably within the research methods literature. This is misleading, as a survey can include a variety of data collection techniques and is far more than a single questionnaire; it is in fact a research method. An individual method does not necessarily relate to a specific data collection technique, although we are often led to believe it does: 'Typically books about research treat techniques and method together, thereby implicitly limiting the use of a particular technique to a certain method' (Harvey, 2000, xv). There are many techniques which are strongly associated with particular research methods and this is perfectly legitimate, but it is wrong to assume that a method dictates a technique. Research design should be flexible enough to ensure that questions are addressed in the most appropriate manner without limiting potential discovery and innovation. A technique is the approach taken to data collection, the way in which empirical evidence will be harvested from the source. 'Techniques' refers to interviews, questionnaires, focus groups, and so on.

Research instrument

This is the device that is designed or trained to collect the data necessary to provide insight or offer answers to the questions being asked. When engaging in experimental research the instrument used could well be a 'brass' instrument, a term that has emerged from laboratory experimentation, when much of the equipment was made of brass. This term is applied now to refer to all experimental apparatus, although it may not of course all be 'brass'. The 'pencil and paper' instrument is the term used to describe a physical questionnaire, the paper or online artefact rather than the technique,

as it has been written by the researcher and will be added to by the research participant. In interpretivist research the 'human' instrument is the researcher, someone who has been trained to look, feel, respond and collect data within a natural setting, sometimes using an additional instrument, sometimes not.

This handbook is designed to follow this research hierarchy, providing descriptions and examples of each stage of the research process and allowing you to make choices at each stage, in order to construct your own research model to satisfy your own goals and the goals of your intended investigation.

Overview of contents

Part 1: Starting the research process

Part 1 focuses on the generic issues that are necessary for the majority of research investigations regardless of the methodology, method, technique or research instrument. This section opens with a brief discussion of the three major research paradigms in information science. I would like to emphasize the *brief*, as it is impossible to provide the detail and depth of discussion necessary for a topic as huge as this.

The purpose of this first chapter is to provide an overview of current thinking within the field. Usually a discipline has a dominant paradigm, although this can and often does change over time. Because of the diverse nature of information science there is no truly dominant paradigm today. Qualitative and quantitative methodologies are discussed and we look at the different approaches to demonstrating the rigour and trustworthiness of both methodologies. This debate is often neglected or, even worse, criteria used to demonstrate rigour in one methodology are applied directly to the other. Literature reviewing, defining the research, sampling and preparing a research proposal are covered in this initial section. One of the two entirely new chapters in this edition appears in this section: the chapter contributed by Professor Julie McLeod, Sue Childs and Elizabeth Lomas presents a very practical approach to Research Data Management (RDM), which was itself the output of a research project, 'DATUM: Research Data Management', funded by JISC under their Managing Research Data (JISCMRD) Programme. The ethics of research will be discussed here and revisited later in the text when we discuss 'netnography'. The practical exercises at the end of every chapter are designed to consolidate your learning from the chapter and to demonstrate just how 'do-able' these activities really are. Research is very much a practical process – no real mystery, just hard work and lots of fun once the trepidation wears off.

Part 2: Research methods

Part 2 focuses on research methods, and the variety of potential approaches available to the researcher. Each chapter describes a research method, and gives examples of the type of question the method responds well to (this does not mean it cannot be tried on something new) and instructions on designing that method. You are again asked to engage in the exercises, which are provided to consolidate the knowledge you have gained from the description in the chapter. Each chapter ends with a selection of further readings, which deal very specifically with the research method discussed in the

chapter. Once you have chosen your approach you can then go on to investigate the method further, if you choose to. I provide enough detail to apply the chosen method but you may well want other opinions, as I would in your position. There are no new chapters in this section but Usability Testing is expanded and moved to this section to take its place as a research method rather than a technique to gather data. The chapter on ethnography has also been expanded to include a method that has emerged with the expansion of online research: 'netnography' has now become the term used for research into virtual communities.

Part 3: Data collection techniques

Part 3 focuses on collecting data. The data collection techniques discussed in this book are essentially those relating to social or 'person-centred' research, but also include those used to examine and develop systems, although this is not an information systems text. 'Virtual' research techniques are included here as adaptations of the conventional techniques. Research in 'virtual' environments is still very new and I encourage you to experiment with your own adaptations as well as those discussed in these chapters. This section now includes a completely new chapter contributed by Dr Andrew K. Shenton on the use of existing data in research; we debated where to locate this chapter initially but decided this was the most appropriate location. The chapter is concerned with the use of data that already exists but may still need to be 'collected' in order to contribute to the new research purpose. Once again, there are opportunities for you to engage in practical exercises, which highlight the way in which the techniques work. Some of them are group activities.

Part 4: Data analysis and research presentation

Part 4 focuses on quantitative and qualitative analysis and presenting research. I have already recommended that you read widely on the method and techniques of your choice, and emphasize this even more in this section. It is outwith the scope of this text to provide the detail and depth necessary for you to master any of the methods of analysis covered here. There are entire texts dedicated to statistical and narrative analysis procedures. I do not repeat these procedures but rather discuss how to apply the procedures appropriately to the data gathered.

I strongly recommend that you gain wider experience of the various strategies introduced here before you go on to apply them within the research context. However, sufficient information and a number of challenging exercises should provide you with enough insight to make relevant choices. Included in this section is a chapter on presenting research, an activity that has turned out to be one of the most challenging aspects of research for a great many researchers. This is not surprising, as so much relies on your ability to get your message across to your reader. All that hard work, effort, planning and investigation is only as good as the final product, the research output.

I hope you get as much pleasure reading and using this book as I have had in acquiring the knowledge and experience to write it. Don't ever get confused by the term 'expert' – it usually simply refers to an individual with a burning passion and someone who

has been around long enough to learn from their many mistakes. This is my passion and I hope I can share some of that passion with you.

Part 5: Glossary and references

The final section in this book provides a glossary of research terms; generally the definitions provided are those commonly used in the disciplines from which they have emerged.

There is also a full list of titles referenced in the text. Further suggested reading is given at the end of each chapter.

PART 1

Starting the research process

Part 1

Starting the research process

In Part 1 I want to focus on the initial stages of any research investigation, the areas common to all research regardless of the character and purpose of that research. It is mostly very practical in nature, with the exception of the first chapter, which examines the philosophical underpinnings of research. Although this philosophical debate is not for the faint-hearted, it is fundamental to understanding the entire activity we refer to as 'research'. I suggest you take the time to engage in this debate if for no other reason than to decide which side of the paradigmatic fence you sit on, to determine your view of the world and the manner in which you feel we can explore that world. I secretly hope that reading this first chapter will capture your imagination and encourage you to follow up the leads I offer; at the very least it should provide you with a broad overview of the fundamental differences between research paradigms and a framework for thinking about the research process. Following the completely new chapter contributed by Professor Julie McLeod, Sue Childs and Elizabeth Lomas on research data management, this section ends with a discussion of ethics in research.

Chapter 1

Major research paradigms

Introduction

The primary purpose of this text is to provide an overview of the research process and a guide to the options available to any researcher wishing to engage in that process. It has been said that too much time spent engaging in the 'higher' philosophical debate surrounding research limits the amount of actual research that gets done. All researchers have their work to do and ultimately it is the 'doing' that counts, but the debate is a fascinating one and it would be very remiss not to provide you with some level of introduction to it. If you find yourself reading this chapter and thinking 'so what?', take some time to examine the implications of a paradigm on the research process. What follows is a very brief discussion of the major research paradigms in the fields of information, communication and related disciplines.

We are going to take a tour of three research paradigms: positivism, postpositivism and interpretivism. I had considered revising this for this edition but after extensive investigation into the developing discourse, I have decided that my basic belief has not been altered by these debates. There are those that lament the absence of a fourth paradigm which covers the mixed-methods approach from this text, namely *pragmatism,* but try as I might I can find no philosophical underpinning for pragmatism that is not already argued within a postpositive axiology. For some this will be too much, for others too little. Those of you who want more can follow the leads at the end of the chapter; those of you who want less, please bear with me for the brief tour of the major research traditions of our discipline. Having at least a basic understanding of different research paradigms is important at any level, if for no other reason than making you aware of the potential implications of the choices you make: 'Being aware of paradigmatic blinders is a first step towards greater situational responsiveness and creativity in making methods decisions' (Patton, 1988, 118).

Guba and Lincoln go further and claim that 'paradigm issues are crucial; no inquirer ought to go about the business of inquiry without being clear about just what paradigm informs and guides his or her approach' (1998, 218). Of course it has also been said that attempting to write on this subject 'requires the skills of an individual who is at once presumptuous and masochistic' (Caldwell, 1994, 1). I hope I am neither, and so I shall keep this discussion to a minimum and examine only that which

I feel is important as background to the practical side of research.

According to Lincoln and Guba (1985), there are three major questions that help us to define a research paradigm: the ontological question, the epistemological question and the methodological question. 'Ontology' is the nature of reality; 'epistemology' is the philosophy of how we can know that reality; and 'methodology' is the practice of how we come to know that reality. The three questions are:

1 What is the nature of reality? This is the ontological question concerning the nature and form of reality.
2 What is the nature of the relationship between the knower and the known? This is the epistemological question.
3 How we can come to know it? This is the methodological question.

It is in answering these three questions that paradigm boundaries are established. The three major research paradigms associated with our disciplines are positivism, postpositivism and interpretivism. By using the three basic questions above we can examine the beliefs of each of these paradigms and contrast the fundamental differences between them. A summary is provided in Table 1.1, which is adapted from Lincoln and Guba (1985, 109). You are strongly advised to read this essay for more detailed discussion.

Before we go on to discuss the three major paradigms let us remind ourselves of what we mean by a paradigm. In the Introduction I used Kuhn's definition of a paradigm as 'the entire constellation of beliefs, values, techniques, and so on shared by members of a given [scientific] community' (Kuhn, 1970, 146). That is to say it is 'a basic set of beliefs that guide action' (Guba, 1990, 17). Now we can go on and examine the positivist, postpositivist and interpretivist traditions in light of the three questions concerning the ontology, epistemology and methodology of each paradigm. I would also like to provide a very brief history of each paradigm for context. These are potted histories that do little more than provide you with an outline of the development. Table 1.1 provides an overview of the contrasting basic beliefs of each of the three paradigms.

Positivist research

Brief history

There are three generations of positivist thinkers who have influenced and shaped the paradigm as it is today: the original formulation of positivism attributed to Auguste Comte, the logical positivism associated with the Vienna Circle, and finally the standard positivism developed in the mid-20th century (Outhwaite, 1987).

In the early 19th century Auguste Comte devised social positivism as a means of examining social phenomena as an empirical science as opposed to the theological and metaphysical philosophies that dominated at the time. Positive knowledge was the discovery of causal laws of phenomena derived directly from observation. This was a rejection of the notion that society was beyond our physical perception and could not be examined in the same way as natural objects could be examined. Comte sought to take the rules and practice of the natural sciences of physics, astronomy and chemistry

Table 1.1 Characteristics of major research paradigms (adapted from Lincoln and Guba, 1985)

	Positivism	Postpositivism	Interpretivism
Ontological stance	'Realism'	'Critical realism'	'Relativist'
	Belief in a tangible, social reality. This reality exists independently of those 'creating' the reality. A social reality can exist just as a natural reality exists (water remains water whether someone is swimming in it or not).	Belief in a social reality but acceptance that knowing this reality will always be inhibited by imperfections in detecting its nature. The imperfections are the result of human fallibility.	Belief in multiple, constructed realities that cannot exist outside the social contexts that create them. Realities vary in nature and are time and context bound.
Epistemological stance	Objectivist/dualist	Modified dualist/objectivist	Transactional/subjectivist
	Investigator and investigated are independent of each other.	Acceptance that independence is not possible but objectivity is seen as the goal and demonstrated by external verification.	The results of the investigation are a product of interaction between the subject and the investigator. What can be known is a result of the interaction.
Methodological stance	Experimental/ manipulative	Modified experimental/ manipulative	Empathetic interaction
	Hypothesis testing, variables identified before the investigation. Empirical testing is conducted in order to establish the 'truth' of the proposition.	Hypothesis testing but more emphasis placed on context.	Investigator interacts with the object of the investigation. Each construction of reality is investigated in its own right and is interpreted by the investigator.
	Predominantly quantitative.	Quantitative and qualitative.	Qualitative, including hermeneutics and dialectic interchanges.
	Analysis by variables.	Analysis by variables.	Analysis by case.
Purpose	Prediction/control/ explanation	Prediction/control/ explanation	Understanding/ reconstruction
	Framing of general laws.	Generalizations.	Transfer of findings.

and apply the same investigative techniques to social theory and human behaviour. It has to be remembered that at this time natural science was still dominated by Newtonian mechanics. But Comte believed it was possible to 'reconstruct human knowledge

in order to build a better society' (Smith, 1998, 78). Although Comte is seen as the 'father of positivism' much of his work was rhetorical; it was Emile Durkheim (1858–1917) who first pioneered empirical investigation of society, and he was labelled the first 'sociologist' (Corbetta, 2003). Durkheim began to examine social phenomena as a set of independent variables that could be empirically tested to determine any evidence of causal links.

Logical positivism emerged from a group of philosophers working in Vienna during the 1920s; they rejected Comte's positivism (they actually refused the title 'logical positivists' in favour of 'logical empiricists' in order to distance themselves still further from the tradition associated with Comte) (Outhwaite, 1987). Moritz Schlick began the movement in 1922 at the University of Vienna. Other notable members of this group, known as the Vienna Circle, were Rudolf Carnap, Philip Frank and Bertrand Russell. Russell developed the analytical tools of mathematics, which made the greatest distinction between Comte's positivism and the new empirical positivism. This was the first time statistical analysis was used to examine social behaviour. These philosophers believed that although Comte had attempted to adapt social theory to the model of the natural sciences, he had not gone far enough. They rejected totally the concept of the metaphysical and claimed that elements of this still existed within Comte's work. They 'asserted that only meaningful statements were to be permitted scientific consideration and accorded the status of knowledge claims' (Caldwell, 1994, 13). By 'meaningful' they referred to only those statements that could be verified or falsified by evidence.

Physical evidence is paramount to logical positivists: if there is no physical evidence then how can phenomena be verified or falsified? They believe that concepts such as motivation and affective influences on behaviour can only become metaphysical speculation, as there is no visible means of verifying these 'unseen' behavioural influences. 'The stated aim of the logical positivist is to cleanse scientific knowledge of speculative thinking, for it is not tied in a direct and demonstrable way to experience' (Smith, 1998, 97). Examples of this way of approaching social investigation can be seen in the work of a group known as 'behaviourists', who based their work on the concept of classical and operant conditioning. This approach concentrates on the way individuals respond to various stimuli. From this behaviourist tradition emerged the 'classical conditioning' of Pavlov (1927), and Skinner's 'operant conditioning' (Skinner, 1987). This demonstrates that the basic premise of positivism, that of social engineering, still remained for the behaviourists although the approach had changed.

Ontology – realism

Positivism assumes the existence of an objective, independent and stable reality, which is available for discovery and analysis. Only observable phenomena are recognized; what is real is only that which can be observed. Metaphysics is strongly rejected, thereby denying the meaningfulness of human characteristics that cannot be demonstrated overtly. Social facts are seen to exist independently of human interaction just as natural laws exist. These social facts function according to their own laws, mecha-

nistic and immutable. Newtonian mechanics were seen as transferable from the natural world to the social world of its inhabitants.

Epistemology – objectivist/dualist

The positivist view of the relationship between the knower and the known is one of 'objective observer'. The researcher can stand apart from that which is being observed and report on the reality that is discovered through this observation. This stance was seen as an obvious development from the natural sciences: if we can watch a flower grow and report on that growth, then watching a human interact with their environment in any way could also be observed and reported.

Dualism exists when two distinct entities are present with the research process, the researcher and the subject, existing independently of each other. Research is designed in such a way that objectivity can be demonstrated through replication; this will be discussed in more detail later in this chapter. This stance relies on the presumption that it is possible to observe without influencing that which is being observed.

Methodology – experimental/manipulative

Positivists believe that reality can be dissected into variables that represent the theoretical constructs that underlie observable phenomena. These variables can then be manipulated through experimentation and 'laws' can be determined from the results of those manipulations. Positivist research usually begins with a hypothesis, which is then tested empirically for verification through structured experimentation. This testing involves a complex statistical mechanism for determining relationships between the variables, and results in broad generalizations concerning the phenomena being studied. Quantitative methodology is used in positivist research.

Purpose – predication/control/explanation/verification

Positivist approaches are focused on explaining how things happen in order to predict what comes next and being in a position to control what happens. Social reconstruction was the driving force behind Comte's original ideas and this purpose remained constant throughout the various positivist traditions. Generalizations are derived from examination of the specific and applied to all occurrences of the incident, striving to demonstrate universal validity.

Postpositivism and mixed methods research (MMR)

Brief history

It is important to realize that the whole premise of positivism was an emulation of the natural sciences, particularly physics. Postpositivism was as much a reaction to the failings of positivism as it was to a shift in the emerging changes in the basic axioms of natural science. During the early 20th century natural science underwent an enormous shift; physics was the driving force behind this shift. There was a move from the rigid mechanistic Newtonian physics to the concept of 'uncertainty' and 'relativity'. Einstein and Heisenberg took physics from the language of deterministic laws to probability and uncer-

tainty (Corbetta, 2003). The great shift here was not Einstein's theory of relativity, but rather his statement about the tentative nature of discovery, that determinism inhibits the true goal of research, which is discovery (Popper, 1963). If it was no longer possible to study the natural world from a mechanistic viewpoint then it was certainly no longer possible to study social facts in that way. This raised an enormous question for the study of human behaviour. There was a need for refinement and development in social research if it was to retain credibility as a true science. That development came in two major stages; standard positivism began in the 1930s and continued through to the 1960s, when it was replaced by the postpositivist paradigm as we know it today.

New theories of uncertainty and probability leading to the tentative nature of discovery were adopted in social research with the concept of 'falsification' introduced by Karl Popper between 1959 and 1963. It was no longer possible to 'prove' a hypothesis, as it could never be certain that an alternative explanation did not exist for the relationship between the variables. Popper introduced the concept of 'critical realism'; the positivist view of the existence of objective social facts remained but this was now tempered with the notion that those facts were subject to interpretation (Tucker, 1998). This was translated into the practical claim that it was possible to prove the hypothesis was 'wrong' to falsify the claim, but not to verify that claim beyond doubt; uncertainty and probability would always prohibit this. Current postpositivism is rooted in the premise that any perception of reality cannot be an objective picture but is drawn from empirical observation and existing theory. There has been a shift within this paradigm but the basic concepts of quantification and generalization taken from original positivism remain predominant.

It is at this point that we need to refer to mixed methods research (MMR) as a form of postpositive research. Although it is clearly a pragmatic approach to exploring research questions, there is still a tendency amongst MM researchers to claim that this approach is a 'catch-all' and by applying both qualitative and quantitative methodologies we are ensuring that the failings of one are compensated for by the other. This is an erroneous assumption (Giddings and Grant, 2007). Denzin (2010, 423) stresses that mixed methods 'requires multiple investigators with competencies in more than one method or paradigm', that would sit much more comfortably than a single individual attempting to be all things to everybody. Denzin has promoted the use of more than one method for many years (Denzin, 1978) but has always argued for rigour and trustworthiness to be ensured. I continue to stress that combining methods is not an issue, the rigour and trustworthiness of the research are.

Ontology – critical realism

Objective social facts do exist independently of and externally to human beings, but these facts are subject to uncertainty and probability. Cause and effect relationships do exist but it is not always possible to 'know' these relationships in their entirety. Human fallibility will always create imperfections but there remains the basic belief that a 'reality' is out there waiting to be discovered.

Epistemology – modified dualist/objectivist

The major difference between postpositivist epistemology and that of the original positivists was the ability of the 'knower' to be completely divorced from the known. Postpositivists accept that all discovery is subject to interpretation; it is the responsibility of the researcher to demonstrate objectivity during the discovery process. This objectivity is demonstrated by external validity, a notion that will be discussed later in this chapter.

Methodology – modified experimental/manipulative

The approach taken by postpositivists remains one of experimentation and hypothesis testing and although the procedure has been modified from that of the early positivists, they remain essentially the same. Variables are identified and manipulated, and the relationship between these variables is then measured using statistical techniques. The more 'qualitative' notion of 'interpretation' is often included in this approach allowing for the possibility of prior knowledge having an impact on the perceptions of results. Mixed methods research is constructed following the same process of an 'a priori' design but that design can take a number of different forms giving equal weighting to qualitative and quantitative aspects of the inquiry or allowing for dominance of one or the other. The various designs will be explored later when discussing methodologies.

Purpose – prediction/control/explanation/falsification

The purpose of research within the postpositivist tradition remains very similar to that of positivism. The most significant difference is the notion of falsification; disproving the existence of a phenomenon had become a valid outcome of an investigation. Generalizations about the phenomena under investigation remain an output of the postpositivist approach to empirical investigation. Methodological dualism in the use of qualitative and quantitative is accepted practice in postpositivist research.

Interpretivist research

Brief history

'Interpretivism' is used as a covering term for a number of approaches to research. Essentially the areas we are concerned with can be sorted into two distinct groups: 'empirical interpretivism' and 'critical theory'. The former deals with investigation in natural settings of social phenomena; the latter engages in ideologically orientated investigation, examining current thought and social structures. Anthropology also falls into the interpretivist paradigm but it is beyond the remit of this book to cover that area in any detail other than to look at the generic issues that influenced the development of all interpretivism. In 1883 Wilhelm Dilthey published the first critique of positivism with his now famous distinction between the 'science of nature' and the 'science of spirit' (Corbetta, 2003). This was essentially a philosophical debate that commented on the difference between understanding human thought and explaining nature. Dilthey's critique was a direct response to positivism, a refutation that human beings could be investigated in 'cold' cause and effect terms.

The first proponent of empirical interpretivism was Max Weber at the beginning of the 20th century. Early interpretivists focused on ethnographic studies of colonial culture and immigrant culture in Europe and America, focusing on the work of Bronislaw Malinowski (Swingewood, 2000) and the Chicago School of sociology (Denzin and Lincoln, 1994). A new movement that attempted to formalize the procedures of empirical interpretivist research followed this early phase. One of the best examples of this approach can be found in the work of Barney Glaser and Anselm Strauss. They attempted to provide interpretivist researchers with a framework for analysis that had, up until this point, been missing from the paradigm (Glaser and Strauss, 1967). Following this, from 1970 to the mid-1980s there was an expansion of the paradigm into a myriad of approaches to interpretivism; these are listed in Table 1.2.

I am not suggesting that all approaches to research shown in Table 1.2 were developed during this short period; these approaches emerged throughout the 20th century (see Swingewood, 2000, for in-depth discussion).

Table 1.2 Approaches to interpretivism

Human inquiry	Critical theory
Anthropology	Feminism
Constructivism	Marxism
Ethnomethodology	Post-modernity
Naturalist inquiry	Post-structuralism
Phenomenology	Structuralism
Semiotics	
Symbolic interactionism	

Ontology – relativism

Interpretivists believe that realities are multiple, constructed and holistic. There is no single, tangible reality, instead there are only the complex, multiple realities of the individual. Reality is seen as 'individual' and embedded in context, as opposed to 'universal' (Flick, 2002).

Epistemology – transactional/subjectivist

The known and the knower influence each other; all descriptions are time- and context-bound. It is impossible to separate cause from effect, as all entities are in a state of simultaneous shaping (Lincoln and Guba, 1985). All knowledge we acquire is a product of the interaction between the known and the knower; the researcher and the subject are both 'changed' by the experience, and knowledge is a result of this interaction and is time- and context-bound.

Methodology – empathetic interaction

Interpretivists take the stance that any research activity will leave the subject of that research in an altered state. Heisenberg claims that 'what we observe is not nature itself, but nature exposed to our method of questioning' (1958, 288). The data that is gath-

ered from that research might itself be, in part, a product of the research process. The time and context in which the data is gathered will also influence that data: 'Context is something you swim in like a fish. You are in it. It is you' (Dervin, 1997, 32). Interpretivism can offer understanding of the meanings behind the actions of individuals. 'From this perspective, meaning depends upon context, and the interpretation of action or opinion must take account of the setting in which it is produced' (Dey, 1993, 110). Interpretivism seeks to understand the entire context, at both the macro- and micro-environmental level. Qualitative methodology is applied, including dialect interchange with participants and hermeneutics, depending on both the tacit and the explicit knowledge of the researcher.

Purpose – transfer of findings based on contextual applicability

Transferability depends on 'similarities between sending and receiving contexts, the researcher collects sufficiently detailed descriptions of data in context and reports them with sufficient detail and precision to allow judgments about transferability' (Erlandson et al., 1993, 33). The 'sending' context is the research location, the 'receiving' context is the context to which the research findings are applied. Interpretivist tradition is concerned with individual contexts, therefore 'research can only be particularized and generalization, in the traditional scientific sense, is impossible' (Dervin, 1997, 14).

As I said in the opening section of this chapter, there are those who believe that discussions of paradigms have no place in the research process; you can make your own mind up about that. I believe that although the theoretical debate may not contribute greatly to 'getting the job done', it does provide an understanding of the intention behind the action. It would be very difficult to provide a simple definition of 'types' of researchers without over-simplifying the nature of these traditions. One useful if somewhat basic definition is supplied by Greene (1990), who suggests that positivists and postpositivists can be thought of as social engineers, interpretivists as storytellers and critical theorists as catalysts of social change.

Qualitative or quantitative methodology?

In the research hierarchy there is no doubt that a research paradigm implies a research methodology. Hopefully the explanation of the three paradigms given above should make this very clear. It is impossible to examine multiple, individual realities in any depth using a quantitative methodology, just as it is impossible to identify a single reality, measure it or quantify it in any other way than via a quantitative methodology.

Gorman and Clayton (2005) identify the fundamental argument between the two methodologies and present a summary of qualitative and quantitative approaches to an inquiry. Although they do not argue necessarily for paradigmatic purity, it appears implicit in the distinctions between the two. They begin by examining the basic assumptions of each mode of inquiry; quantitative methodology assumes the objective reality of social facts; qualitative methodology assumes social constructions of reality (Gorman and Clayton, 2005, 24–8). These assumptions are in fact two

of the basic axioms of two separate belief systems, two conflicting paradigms. There is no consensus of opinion concerning the need for paradigmatic purity in research. Many social researchers see methodological dualism as the only pragmatic option. Feyerand argues that this eclectic approach to inquiry is not only possible but necessary if science is to advance, claiming that both 'methodologies have their limitations and the only "rule" that survives is "anything goes"' (Feyerand, 1975, 296). This is in fact the methodology associated with the postpositivist paradigm. Although there is much discussion about mixed methods research as an emerging methodology, it is actually something which had been advocated by many social science researchers for over four decades. MMR is not a methodology, in my opinion, it is a method for combining the existing two methodologies in various ways to address various research questions. This could be one of those examples where discussion about methodologies and past 'paradigms wars' (Denzin, 2010) do us very little good in terms of getting the job done.

Qualitative research design

The emergent design of qualitative research does not allow for a detailed plan before the research begins: 'the research design must therefore be "played by ear"; it must unfold, cascade, roll, emerge' (Lincoln and Guba, 1985, 203). However, it is possible to develop a design that allows for the iterative nature of the study. A design adapted from Lincoln and Guba's generic research model (1985, 188), their development of that model (Guba and Lincoln, 1998, 104) and Kumar (1999) is presented in Figure 1.1. This design illustrates the entire research process conducted within the boundaries of trustworthiness: transferability, credibility, dependability and confirmability. The human instrument applies appropriate data collection techniques, complemented by tacit knowledge, to the investigation. Purposive sampling is employed in order to achieve a sample of maximum variation, extreme case or typical case (Patton, 1987), to ensure that each new research participant contributes characteristics differing from preceding participants. This allows for multiple perspectives on the phenomena under study. Inductive data analysis is a vital part of both the selection of subsequent participants and the constant building of grounded theory (Glaser and Strauss, 1967). The emergent design (Lincoln and Guba, 1985) of individual data collection techniques is based on analysis of preceding data and the identification of concepts and ideas that require further and deeper investigation. This process produces individual studies, which are then reported back to research participants and discussed with the researcher. By analysing these individual studies, themes are identified which provide grounded theory to be transferred from the local to the global level (Deem, 1998).

The essential components of a qualitative research design are literature review, theoretical framework (to act as cognitive signposts, not to restrict emerging concepts), fieldwork in a natural setting, using a human instrument, purposive sampling, appropriate data collection techniques, inductive analysis, emergent design, iteration of activities, grounded theory, negotiated outcomes, and forming a tentative working hypothesis, leading to transference of findings based on contextual applicability.

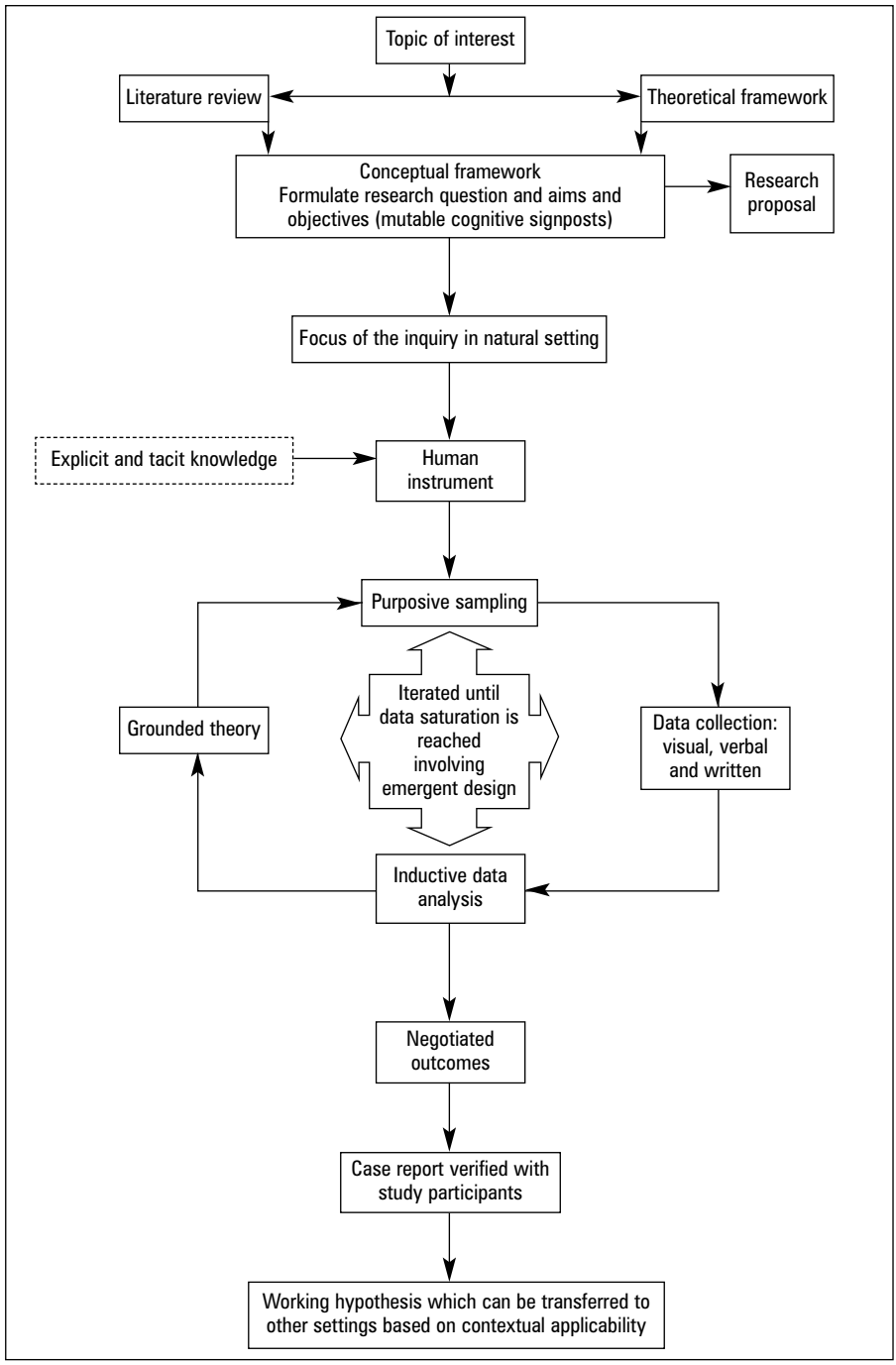

Figure 1.1 Qualitative research design (adapted from Kumar, 1999, and Lincoln and Guba, 1985)

Many of these stages are discussed in detail in subsequent chapters but there are a number of things we need to examine further before we go on.

Human research instrument

In order to study behaviour in context it is most appropriate to choose the human as instrument. Human lives and their interpersonal relationships create complexities that need to be understood and the researcher acting as the research instrument allows for understanding and depicting these complexities: 'These complexities . . . cannot be figured out, cannot be understood by one-dimensional, reductionist approaches; they demand the human-as-instrument' (Maykut and Morehouse, 1994, 27).

Qualitative research combines the individual research participant, the researcher as research instrument and appropriate data collection techniques in a collaborative process of producing meaning from data and using that meaning to develop theory: 'If a person is to be understood as a person and not as a thing, then the relationship between the researcher and the other person must be a dynamic and mutual relationship' (Maykut and Morehouse, 1994, 37). When human experience and situations are the subject of the research, then the human as instrument is 'the only instrument which is flexible enough to capture the complexity, subtlety, and constantly changing situation which is the human experience' (Maykut and Morehouse, 1994, 26). The researcher as instrument is also in a position to apply appropriate tacit knowledge to each situation and event as it occurs. Tacit knowledge can contribute to interpretation of the observed evidence, although confirmation and justification of how this knowledge is applied must be possible. Tacit knowledge provides a springboard to generate theory but must be applied tentatively and these theories are only retained and developed when there is evidence to support them.

Emergent design

Emergent design is an integral part of all qualitative research yet it is rarely explicitly admitted outside the social sciences. The concept of an emergent design is based on the belief that the researcher 'does not know what he or she doesn't know' (Lincoln and Guba, 1985, 209) at the beginning of a study. Therefore it would be impossible to establish the means by which the unknown could manifest itself to the researcher during the course of the study. Because of this, qualitative research allows the design to emerge as the study progresses. A research model can and should be developed that allows for the iterative nature of the study. It takes the form of a plan that maintains the focus of the study without restricting or limiting the use of individual techniques as they become apparent. This is one area in the investigation where the participants can be given a degree of control over the process, leading to a sense of ownership of the study: 'The [interpretivist] paradigm affirms the mutual influence that researcher and respondents have on each other . . . never can formal methods be allowed to separate the researcher from the human interaction that is the heart of the research' (Erlandson et al., 1993, 15).

An interesting example of this occurred during one of my own qualitative investi-

gations involving teenagers. I had designed what I thought to be a very good search log (a diary of their information seeking behaviour) for each participant in my study and asked them to use it. After 20 weeks of the field work, only two of the 16 teenagers had begun to use their logs to keep a record of their searches. They were happy with the organization and format of the log and thought that the information provided in it was clear and gave them a valuable framework for recording their work. The 14 teenagers who had made no entries gave a variety of reasons for not complying with my request: 'I haven't done any research projects', 'I forgot what to do', 'It interferes with my work', 'It takes up too much time', 'I can't be bothered' and 'I don't want to walk around with a great big yellow book, I feel stupid'.

A focus group meeting was held at each site to decide what could be done about this problem. I explained that I needed a detailed account of the searches the teenagers carried out when the researcher could not be present. It was to be a surrogate for the observations the teenagers were now accustomed to. Very productive discussions followed and the teenagers themselves identified ways in which they thought the search log could be a more effective tool. They suggested keeping a handwritten diary in their own words, storing data on a Microsoft Access database, and keeping a diary in a Microsoft Word file. One participant requested an audio tape so he could describe his actions verbally. Unfortunately the economic restrictions of the research would not permit this last suggestion although it would have been a very interesting data collection method. I agreed to logs being kept in one of four ways: on databases, on notebooks, as word-processed documents, and using the original log design. The search logs provided a rich source of data and were well maintained throughout the research. The level of involvement in the design of the log by the teenagers played an important role in the quality and quantity of information provided from this source. They had become stakeholders in the research and this appeared to encourage vigilance in maintaining the logs. After all, if their design was so much better than mine it had to work to prove them right! It certainly increased their diligence.

Negotiated outcomes

The dialectic nature of qualitative research is accommodated by interaction with participants where they are encouraged to compare and contrast the researcher's constructions of reality by debate: 'Because the realities that will be included are those that have individually and collectively been constructed by persons within the context of the study, it is imperative that both data and interpretations obtained be verified by those persons' (Erlandson et al., 1993, 31).

Stake claims that negotiated outcomes or 'member checking' is a vital component of a study, not just in terms of adding to the credibility of the study, but also in improving the quality of the final case report. He stresses that 'all [his] reports have been improved by member checking' (Stake, 1995, 116). There is some debate on how far participants should be allowed to go in terms of altering what has been said or done but it is the responsibility of the researcher to control this procedure to allow for maximum information yield. Ultimately this is up to the researcher or the research team.