



Research Methods for Construction

Fourth Edition

Richard Fellows • Anita Liu

WILEY Blackwell

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Preface

We are very grateful to all our colleagues and researchers who have taken the trouble to provide us with feedback on previous volumes; that feedback has been extremely useful in helping us to amend and improve the content and presentation for this fourth edition of our book. Our own research has continued to inform us and so, the entire book has been scrutinised for scope, rigour and content as well as for ease of comprehension and use.

Research, itself, is a field which is developing and evolving constantly. Philosophical and methodological preferences and debates ebb and flow along the pattern of the dialectic triad. Mixed and multi-method approaches have become popular due to their more inclusive/comprehensive scope. Methods and techniques are developing and new ones are emerging. IT plays an ever greater role in research in a wide variety of ways.

Given the extent and speed of developments, it is hardly surprising that debates and concerns also proliferate. Ethical issues concerning collection, processing, storage, use and disposal of data are addressed in Chapter 8 – which considers the various reports, legislation, codes of practice and requirements of ethical committees and reviews. Pressures of time and funding to ‘do the study’ (the empirical work) all too often lead to a lack of attention to how the study should be done and why. Attention should be given to the philosophical approach adopted (ontology, epistemology) and the consequent methodology – all require rationale/justification. Methods available should be scrutinised for appropriateness, both academically and practically, again, requiring justification for use in context. That is a fundamental theme of this book – to facilitate a researcher’s informed and justified selection of a philosophical paradigm and, thence, of appropriate methods to execute the research.

A particular, and vitally important, component is the critical study of theory and literature – usually, a major process to be undertaken early in the research to inform the researcher(s) and, hence, the study. Failure to undertake a thorough review of theory and literature will leave the research poorly informed and with important ‘holes’ and duplications; consequently, the essential discussion of the results and drawing of conclusions will be fundamentally flawed. (In grounded theory, the debate is not whether to study theory and literature but when to do so.)

In a fairly nascent field of research, such as construction, the need for demonstrated rigour is paramount. Methods and techniques from other disciplines and domains are adopted – that requires care and rigour in itself to ensure that suitable methods are selected and employed validly and correctly (e.g. avoiding the ecological fallacy in researching culture topics; appropriate uses of Likert response formats and of Likert scales, and statistical tests which are valid for them – see Chapter 6).

Thus, it could be tempting for us to be prescriptive over how to conduct studies, what methods to use, and so on. We have consciously and strongly resisted that temptation in order to preserve presentation and discussion of the rich array of methodologies and methods available – and appropriate in differing contexts and for different topics. Rather, we have incorporated the main threads of advice and debate, often drawn from the vast body of highly authoritative research papers and books, to succinctly inform researchers

of the issues and so, to enable them to make their own, informed selections for achievement of validity and reliability in their particular topics and contexts (which is, itself, a major intellectual component of research).

Finally, our thanks go to the many colleagues and friends who have helped and supported us. In particular, Madeleine Metcalfe and Harriet Konishi at Wiley-Blackwell, and all the production staff, who have been so kind, helpful and understanding in our endeavours to complete this fourth edition.

Anita Liu
Richard Fellows
Hong Kong, July 2014

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Part I

Producing a Proposal

1

Introduction

The objectives of this chapter are to:

- introduce the *concept of research*;
- provide awareness of different *classifications of research*;
- outline the essentials of *theories and paradigms*;
- discuss the various *research styles*;
- introduce *quantitative and qualitative approaches*;
- consider *where, and how, to begin*.

1.1 The concept of research

Chambers English Dictionary defines research as:

- a careful search
- investigation
- systematic investigation towards increasing the sum of knowledge.

For many people, the prospect of embarking on a research project is a daunting one. However, especially for people who are associated with a project-oriented industry, such as property development, building design, construction or facilities management, familiarity with the nature of projects and their management is a significant advantage. Dr Martin Barnes, an ex-chairperson of the Association of Project Managers (APM), has described a project as a task or an activity which has a beginning (start), a middle and an end that involves a process which leads to an output (product/solution). Despite the situation that much research is carried out as part of a long-term 'rolling' programme, each individual package of research is an entity which is complete in itself, while contributing to the overall programme.

Indeed, any work which assists in the advancement of knowledge, whether of society, a group or an individual, involves research; it will involve enquiry and learning also.

1.1.1 Research: a careful search/investigation

Research can be considered to be a ‘voyage of discovery’, whether anything is discovered or not. In fact, it is highly likely that some discovery will result because discovery can concern the process of investigation as well as the ‘technical subject’ (the topic of investigation). Even if no new knowledge is apparent, the investigation may lend further support for existing theory. What is discovered depends on the question(s) which the research addresses, the patterns and techniques of searching, the location and subject material investigated, the analyses carried out and, importantly, reflection by the researcher on the results of the analyses in the context of the theory and literature and methodology/methods employed. The knowledge and abilities of researchers and their associates are important in executing the investigative work and, perhaps more especially, in the production of results, discussion of them and the drawing of conclusions. Being open-minded and as objective as possible is vital for good research.

1.1.2 Research: contribution to knowledge

The Economic and Social Research Council (ESRC) defines research as ‘... any form of disciplined inquiry that aims to contribute to a body of knowledge or theory’ (ESRC, 2007). That definition demonstrates that the inquiry must be designed and structured appropriately and that it is the intent of the inquiry which is important (to distinguish from casual inquiries) rather than the outcome *per se*.

The *Concise Oxford Dictionary* (1995) provides a more extensive definition of research as ‘the systematic investigation into and study of materials, sources and so on in order to establish facts and reach new conclusions’. Here the emphasis lies on determining facts in order to reach new conclusions – hence, new knowledge. The issue of ‘facts’ is not as clear, philosophically speaking, as is commonly assumed, and will be considered later.

The dictionary continues: ‘an endeavour to discover new or collate old facts and so on by the scientific study of a subject or by a course of critical investigation’. Here there is added emphasis on the method(s) of study; the importance of being scientific and critical is reinforced.

Therefore, research comprises *what* (facts and conclusions) and *how* (scientific; critical) components. Being critical, even sceptical, rather than merely accepting, is vital; evidence to support assertions, use of methods, production of findings and so on is essential. ‘... critical analysis questions the authority and objective necessity of the normative framework that is taken for granted ... also challenges the adequacy of ... accounts ...’ (Willmott 1993: p. 522). Further, it is concerned to ‘... situate the development and popularity of ideas and practices ... in the material and historical contexts of their emergence and application ...’ (*ibid*: p. 521).

The history of the nature of investigations constituting research is paralleled by the continuum of activities undertaken in a modern research project – description, classification,

comparison, measurement, establishing (any) association, determining cause and effect (Bonoma 1985). ‘Studies toward the description end of the continuum might be associated more frequently with *theory building*, whereas those near the cause-and-effect end are more frequently used for theory disconfirmation [testing]’ ([..] added, *ibid*: p. 201).

Traditionally, the essential feature of research for a doctoral degree (PhD – Doctor of Philosophy) is that the work makes an original (incremental) contribution to knowledge. This is a requirement for a PhD, and many other research projects also make original contributions to knowledge. A vast number of research projects synthesise and analyse existing theory, ideas and findings of other research, in seeking to answer a particular question or to provide new insights. Such research is often referred to as scholarship; scholarship forms a vital underpinning for almost every type of research project (including PhD). However, the importance of scholarship is, all too often, not appreciated adequately – it informs and provides a major foundation upon which further knowledge is built, for both the topic of investigation and the methodology and methods by which investigations may be carried out.

Despite its image, research is not an activity which is limited to academics, scientists and so on; it is carried out by everyone many times each day. Some research projects are larger, need more resources and are more important than others.

Example

Consider what you would do in response to being asked, ‘What is the time, please?’ Having heard and understood the question, your response process might be:

- look at watch/clock
- read time
- formulate answer
- state answer (‘The time is ...’).

In providing an answer to the original question, a certain amount of research has been done.

Clearly, it is the research question, or problem, that drives the research. Methodology, method(s), data and so on are determined to best suit answering the question validly, accurately and reliably. It is dangerous to adopt a method and then to hunt for questions and problems to which the method may be applied – it may not be (very) suitable and so, lead to difficulties and dubious results.

1.1.3 A learning process

Research is a learning process ... perhaps the only learning process.

Commonly, teaching is believed to be the passing on of knowledge, via instructions given by the teacher, to the learner. Learning is the process of acquiring knowledge