

# Chapter One

## Methodological pluralism in construction management research

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### Introduction

A fundamental question confronting anyone doing social research is for them to construct a philosophical position and orientation towards their enquiry. Unlike many domains which have established practices, construction management is a relatively new field which draws from both the natural and social sciences. As such, many different theories of knowledge or paradigms compete for methodological primacy. Researchers draw from both traditions when designing their research projects in a way which remains sensitive to the theoretical and philosophical foundations upon which their enquiry is based. However, the extent to which this has resulted in a plurality of methodological perspectives is questionable. For many years positivism and quantitative methods have been in the ascendancy in construction management research (Fellows and Liu, 1997: 78–79). This has promoted an orthodoxy of the application of ‘natural science’ methods to study social phenomena and an attendant focus on *explaining* human behaviour. In contrast, proponents of interpretivism, as an alternative paradigm, espouse the importance of *understanding* human behaviour (Bryman and Bell, 2003: 15). This has an emphasis on the empathetic comprehension of human action rather than the forces which shape it (ibid. 16). This perspective arguably has the potential to provide complementary insights, enriching understanding of the perspectives of those who work in the sector.

The construction management research community has an interesting history when it comes to debating the merits and demerits of different theoretical and philosophical perspectives on methodologies from different research paradigms. Concerns at the apparent dominance of positivism and the role of theory in construction management research in the mid-1990s led to a philosophical debate in the journal *Construction Management and Economics*. This debate was initiated by two papers in particular (Seymour and Rooke, 1995; Seymour *et al.*, 1997), which questioned the dominance of the rationalist position which seemingly underpinned most research within the community, suggesting that this tacitly endorsed the very attitudes in need of change in the industry. They suggested that the culture of research must change if researchers were to have an influence on the industry. In responding to Betts and Lansley’s (1993) review of the first ten years of the Journal, Seymour *et al.* (1997) further questioned the dominance of the scientific theorising associated with realist ontological and epistemological positions, given that the ‘object’ of most construction management research is people. This suggested that the construction management discipline underestimated the interpretive process. These papers invoked a vigorous and somewhat polarised response around the relative merits of different research approaches.

Seymour and his colleagues were accused of being 'anti-scientific' and of propagating an approach which has yet to yield productive output, theories or progress (Runeson, 1997). Further, they were accused of promoting an approach more akin to consultancy than research, and of advocating methods which themselves have been widely criticised within the sociological literature (Harriss, 1998). Seymour and Rooke (1995) were also accused of setting out battle lines in the way that they dichotomised rationalist and interpretative paradigms to the detriment of research standards (Raftery *et al.*, 1997). Seymour and colleagues defended their position by counter claiming that Raftery *et al.* themselves undermined standards by failing to recognise that different methods suit different purposes and that their position was symptomatic of the widespread confusion over terms such as 'method', 'methodology' and 'paradigm' (Rooke *et al.*, 1997). They also questioned Runeson's definition of 'science', defending the rigour of the methods associated with the interpretive paradigm and their value in establishing the meaning ascribed by the social actors being studied (Seymour *et al.*, 1998). Various other authors weighed into the debate (Loosemore *et al.*, 1996), with some questioning its value given the apparent focus on research methods as opposed to methodology (Root *et al.*, 1997).

More than a decade on, a number of questions emerge in terms of the legacy of this debate in terms of the impact it has had on construction management research. Firstly, have alternative research paradigms been embraced, or did the construction management community merely revert to its traditional adherence to positivism and quantitative methods? Secondly, do those within the construction management community draw upon a greater diversity of methods to enrich their understanding of the actuality of practice from the perspectives of those who work in the sector? And thirdly, has there been a move towards mixing paradigms and methods, or have the rival camps within the construction management research community remained entrenched and dichotomised within their own ontological and epistemological communities? This chapter aims to attempt to provide some answers to these questions in order to establish whether the debate has had a lasting legacy on the way in which construction management researchers now 'do' social research. In particular, it examines the extent to which construction management researchers have embraced 'multi-strategy' research – that which integrates quantitative and qualitative research within a single design (cf. Layder, 1993; cited in Bryman and Bell, 2003). In management science research, this perspective has been most recently associated with 'multimethodology', the practice of combining methodologies from different paradigms in an attempt to providing richer insights into relationships and their interconnectivities within organisations (Mingers and Gill, 1997). In advocating such a position, the aim is not to infer that combining strategies is inherently 'better' than employing a single research strategy, but to present an alternative perspective on how construction management researchers might design their research projects in the future.

Initially, the basic principles of research strategy and design are examined and the ontological and epistemological assumptions which underpin different research paradigms and strategies examined. Next, the methods utilised by researchers in construction management are examined through examination of a recent complete volume of the peer-reviewed journal *Construction Management and Economics*. This analysis reveals the extent to which methodological pluralism has been embraced by the research community to date. In addition, it examines the types of interpretative research methods applied by construction management researchers and questions. Thus, the results reveal both how the construction management research community has responded to the philosophical questions asked of it in the mid-1990s, and the

diversity of research approaches that this has induced. The ensuing discussion speculates as to the likelihood of the insights gained through these research approaches informing the development and evolution of the industry that it serves. The likely impact of an enduring polarisation of philosophical position is juxtaposed against the potential benefits of multimethodological research design. This is used as the basis for the construction of an argument for the promotion of methodological pluralism in construction management research as a reaction to the entrenched views which seemingly pervade much of the community at present.

## Research strategy and design

As a precursor to investigating the methods adopted by construction management researchers, it is necessary to review briefly the decisions which underlie research methodology, strategy and design. Clearly, research methodology in social enquiry refers to far more than the methods adopted in a particular study and encompasses the rationale and the philosophical assumptions that underlie a particular study. These, in turn, influence the actual research methods that are used to investigate a problem and to collect, analyse and interpret data. In other words, research methods cannot be viewed in isolation from the ontological and epistemological position adopted by the researcher.

In philosophy, ontology can be taken to broadly refer to conceptions of reality. Objectivist ontology sees social phenomena and their meanings as existing independently of social actions, whereas constructivist ontology infers that social phenomena are produced through social interaction and are therefore in a constant state of revision (Bryman and Bell, 2003: 19–20). Epistemology refers to what should be regarded as acceptable knowledge in a discipline (ibid. 13). Epistemological perspectives are bounded by the positivist view that the methods of the natural sciences should be applied to the study of social phenomena, and the alternative orthodoxy of interpretivism which sees a difference between the objects of natural science and people in that phenomena have different subjective meaning for the actors studied. Understanding the influence that competing paradigms have on the way in which research is carried out is fundamental to understanding the contribution that it makes to knowledge. Taking Bryman's (1988) definition of a paradigm as a 'cluster of beliefs and dictates which for scientists in a particular discipline influence what should be studied, [and] how research should be done', different research paradigms will inevitably result in the generation of different kinds of knowledge about the industry and its organisations. This perspective sees different paradigms as incommensurable, and so the choice of which paradigm to adopt fundamentally affects the ways in which data are collected and analysed and the nature of the knowledge produced.

In broad terms, the term 'research design' describes the ways which the data will be collected, analysed in order to answer the research questions posed and so provide a framework for undertaking the research (Bryman and Bell, 2003: 32). Making decisions about research design is fundamental to both the philosophy underpinning the research and the contributions that the research is likely to make. For example, qualitative research stresses 'ecological validity'; the applicability of social research findings to those that exist within the social situation studied. Choosing a reductionist approach to examining social phenomena (such as questionnaire survey) is likely to distance the enquiry from the social realities of the informant, thereby undermining its ecological validity. Thus, methods are inevitably intertwined with research strategy.

Without wishing to dichotomise or pigeonhole researchers within the construction management community, it is important to distinguish between the different types of research conducted as a backdrop to discussing the diversity of the methods employed. In broad terms, construction management research either adopts an objective 'engineering orientation', where the focus is on discovering something factual about the world it focuses on, or a subjectivist approach, where the objective is to understand how different realities are constituted (see Harty and Leiringer, 2007). Whilst the former emphasises causality and generalisability, the latter focuses on localised subjective meaning. In this chapter a distinction is also drawn between 'quantitative' and 'qualitative' research. Whilst this distinction is considered by some as unhelpful (see for example Layder, 1993; cited in Bryman and Bell, 2003), it nevertheless provides a useful framework for categorising the methods used by researchers. Indeed, it can be argued that quantitative and qualitative research are themselves rooted in particular ontological and epistemological foundations (i.e. objectivism and constructivism, and positivism and interpretivism respectively). Accepting this association between research methods and research paradigms enables philosophical differences in the role that theory plays in research to be viewed through the lens of the methods employed by researchers. In other words, the methods employed can be used as a proxy for the paradigm adopted. It is accepted that this represents an oversimplification of reality. For example, it is plausible that qualitative methods can be employed for theory testing as well as theory generation. However, as will be discussed later in this chapter, this is the case in the vast majority of construction management research projects.

## The dominant research paradigm within construction management

In order to examine the methodological positions and research methods adopted by construction management researchers, an analysis was carried out of every paper published in *Construction Management and Economics* in Volume 24, 2006 (see Dainty, 2007). Each paper was scrutinised for statements as to the methodological position of the author(s) and the methods employed. Where this was not unambiguously stated within a defined section of the paper, efforts were made to identify the methods adopted from the narrative description of the research. In some cases, no discernable empirical research methods were adopted as the paper was a review-type contribution. In other cases, papers drew upon a multi-paradigm research design. These papers were defined as 'review' and/or 'mixed methods' respectively. Thus, four broad classifications were used for summarising the methodologies adopted within the papers as follows:

- (1) *Quantitative* – unambiguously adopting quantitative methods rooted in a positivist research paradigm.
- (2) *Qualitative* – unambiguously adopting qualitative methods rooted in an interpretative research paradigm.
- (3) *Mixed methods* – comprising a combination of both inductive and deductive research methods.
- (4) *Review* – not utilising empirical research methods.

For those papers which reported research which adopted a qualitative (2) or mixed method (3) approach, a further sub-classification step was undertaken to categorise the methods used. These categories were established inductively and were not based

on an *a priori* classification of research methods. In this respect, the interpretation of the methods adopted by the papers studied is itself interpretative. This was necessary as some authors did not unambiguously state their adopted methods. The qualitative methods adopted by the authors comprised interviews (semi-structured and unstructured), focus groups and group interviews, observation (non-participatory and/or participatory including ethnography), document or other textual analysis and visual data analysis.

It is important to recognise several significant limitations of the approach adopted. Firstly, the papers published within *Construction Management and Economics* may not be reflective of the entire construction management research community. A search of papers published in other journals may have revealed that they attract papers from a different constituency of the research community which adopt different research methods. Secondly, this study represents an analysis of only those papers published and not *submitted* to the Journal. As such, the analysis may be more representative of the biases of referees rather than being necessarily representative of the methods actually adopted by construction management researchers. A third limitation concerns the nature of the methodological description contained within the papers themselves. This is highly variable and renders any such analysis somewhat tenuous. In addition, it is possible within some of the projects that other methods were employed which have not been unambiguously stated within the papers. These aspects may not have been published or may have been published elsewhere for legitimate reasons (such as word restrictions placed on articles within the Journal). A fourth issue concerns the reliability of drawing general conclusions based on a single year's worth of papers. It is possible that papers published in this year were anomalous to the general trends in the kind of papers published within the Journal. A final issue is that not all of the papers published within the Journal can be described as 'social research'. For example, some papers dealt with aspects of construction law or finance, which have only loose connections to social phenomena, for which the utilisation of qualitative methods would have been inappropriate. Despite these weaknesses, however, the Journal is considered by many construction management researchers to be one of the leading refereed publications in its field. This is supported by the very high levels of copy flow and the high rejection rate (see Taylor and Francis, 2007). Furthermore, it is reasonable to assume that, given that reviewers of papers are drawn from the construction management research community, that any bias towards methodological approaches would even itself out over time. The year selected for analysis, 2006 was the most recent year for which a full year's worth of papers were available. Furthermore, the Journal switched to a 12-issue format in 2006 which enables more papers to be considered in the analysis. Thus, whilst this chapter makes no claims as to the statistical reliability of the findings presented, and draws upon a wholly qualitative analysis of the narrative description of the methods employed within the papers, it does enable a simplified cross-sectional view of the dominant position of the research community.

The results of the analysis are presented in Tables 1.1 and 1.2. Table 1.1 presents an overview of the methods used within the research reported in the papers reviewed. These data represent the number of papers utilising the methods embodied by the broad classifications listed above. This shows that of 107 papers and notes published in Volume 24 of the Journal, 76 used quantitative methods. Only 9 used qualitative methods exclusively. In addition, a further 12 papers used a mixed methods approach combining qualitative and quantitative methods. It should be noted that in a few of the studies which have been classified as utilising exclusively quantitative approaches, a brief mention of exploratory interviews was made, although none of this was reported

	Qualitative methods	Quantitative methods	Mixed methods	Review/ other papers
No. of papers	9	76	12	10
(% within parentheses)	(8.4)	(71.0)	(11.2)	(9.4)

**Table 1.1** Broad classification of research methods reported in all papers (excluding letters and book reviews) in Vol. 24 of *Construction Management and Economics* (n = 107).

	Interviews	Focus groups, workshops and group interviews	Observation	Document or textual analysis	Visual data
No. of papers	16	3	2	3	1

**Table 1.2** Classification of research methods reported in papers using qualitative research methods in Vol. 24 of *Construction Management and Economics*.<sup>1</sup>

in the data. Although it could be argued that the qualitative findings may have shaped the resulting enquiry and quantitatively derived results, the fact that they did not warrant reporting in the papers provides justification for excluding them from the ‘mixed methods’ classification.

Table 1.2 presents a breakdown of the types of qualitative methods employed by those employing only qualitative methods and those adopting a mixed methods approach. In this table, papers have been classified under each category if the particular method has been utilised and the results reported in the paper. Thus, this table reflects the number of times that a method was applied across the sample of papers. Given that several studies employed a number of methods and datasets, this number is greater than the number of papers identified in Table 1.1. This table reveals that 16 of the 107 papers published in Volume 24 of the Journal used individual open-ended interviews. This represents more than three quarters of the studies employing qualitative methods. Three studies used focus groups, workshops and/or group interviews, two used forms of observation and three analysed documentary data (mainly as part of case study research). Only one paper reported analysing visual data.

### Discussion: The implications of methodological uniformity

The construction management research community has clearly grown and developed since the methodological debates of the mid-1990s. This is reflected in the growth of the number of peer-reviewed journals and the numbers of papers published relating to the practice of construction management. Much of this work could be considered social science or sociological research, which is aimed at understanding the social structure and patterns of interaction between those working within, and affected by, the built environment and the agencies and institutions which structure it). Much of this work is also founded on the ‘co-production’ of knowledge. In other words, researchers use the real-world context of the industry as sites for developing research questions, and for conducting empirical work to examine them (Harty and Leiringer, 2007). It could be reasonably expected that their methodological positions and the methods adopted may have broadened and diversified to reflect the multiple traditions from

which the community now draws. However, if the contents of this volume of *Construction Management and Economics* are reflective of the community at large, that is manifestly not the case. The findings raise fundamental questions, both in relation to the narrow ontological and epistemological standpoints of the research community, and in relation to the uniformity of methods that interpretive researchers employ.

Questions of social ontology are concerned with whether social entities are objective realities or social constructions built up from the actions and perspectives of social actors (Bryman and Bell, 2003: 19). It would seem on the basis of this analysis that the majority of construction management researchers have retained an objectified view of reality. Whilst it is by no means certain that the predominance of quantitative methods revealed in this paper is inexorably linked to positivist research philosophies (surprisingly, few of the papers actually stated a methodological position within the volume reviewed), it is highly likely that this reflects on on-going adherence to natural science methodologies and reductionist approaches to social enquiry within the community. Whether this should be seen as a concern will depend upon the individual standpoint of the reader, but the construction management community's apparent reluctance to embrace methodological pluralism has undoubted implications for the contribution it makes to both research scholarship and practice. It would seem that the research community has continued to adopt a rationalist paradigm in seeking to theorise on construction management as a discipline, with a resultant emphasis on causality over meaning (cf. Seymour and Rooke, 1995; Seymour et al., 1997). Whilst it could be argued that the research community reflects, in microcosm, the industry's wider adherence to instrumentalist and rational solutions to complex managerial problems and situations (see Dainty et al., 2007), it raises questions as to the ability of the construction management research community to be able to provide a rich and nuanced understanding of industry practice.

A second issue emerging from this analysis concerns the apparent reliance of qualitative construction management researchers on open-ended interviewing. As was discussed above, in contrast with quantitative research design, which remains relatively methodologically uni-dimensional, contemporary qualitative research is characterised by its diversity (Punch, 2005: 134). However, in the volume of *Construction Management and Economics* reviewed, virtually all of the studies which employed exclusively qualitative methods relied exclusively on semi-structured interviews. Within the social sciences, the apparent over-reliance on interviewing has been attracting criticism from researchers who see it both as symptomatic of the 'interview society' and as belying the fact that interviews are themselves methodologically constructed social products (see Hammersley and Gomm, 2005; cited in Gubrium and Holstein, 2002). In the past, those critical of interviewing have questioned their efficacy based on practical and pragmatic considerations such as the truthfulness of the informant and the differences between what people say and what they actually do (see Hammersley and Gomm, 2005). However, Hammersley and Gomm also point to a more radical critique of interviews as a research method as having recently emerged in which the social construction of what is said, and the fact that they reflect the particular context within which they take place, has been seen as limiting their methodological validity. Such a critique sees the interview informants as being more focused on self-presentation and the persuasion of others, rather than on presenting facts about themselves or the world in which they exist (ibid.). Regardless of whether such a radical perspective on the efficacy of interviews is fully accepted, the acknowledgement that they are in any way flawed reinforces the need for data from different sources to triangulate the inferences and outcomes that they provide.

An emergent finding also warranting further discussion concerns the lack of reflexivity within the papers reviewed. As was alluded to above, there is a tradition of reflexivity in qualitative enquiry where researchers openly question the effectiveness of their research methods on the robustness of their results and debate the influence and effect that their enquiry has had on the phenomena that they have sought to observe. Being reflexive requires a willingness to probe well beyond interpretation of the data, to explore how personal research bias affects the research process itself (Woolgar, 1988 ; cited in Bryman and Bell, 2003: 529). Despite this however, there is an absence of critical reflection in many of the papers reviewed which adopted qualitative methods. This may reflect that dominant rationalist paradigm of the construction management research community, or even a concern on the part of interpretative researchers that such a reflection would effectively equate to an admission of 'flaws' in their research designs. However, an apparent reluctance to engage in reflexivity arguably has a detrimental effect on the methodological evolution of the discipline and the development of its theoretical base.

## **The case for methodological pluralism in construction management research**

In charting the history of pluralism, Mingers (1997: 3) notes that philosophers such as Hanson, Kuhn and Popper demonstrated flaws in the cornerstones of induction, and theory- and observer-independent observation. He argues that in social science, this legitimated the emergence of the various schools of interpretivism such as phenomenology and hermeneutics. He also notes that similar trends emerged in management science in the 1980s with the emergence of soft systems methodology (SSM) and other soft operations research (OR) approaches. It was through the challenge to the positivist orthodoxy by the emergence of phenomenological and structuralist epistemological positions that the new perspective of 'methodological pluralism' emerged.

The basic principle of methodological pluralism is that the use of multiple theoretical models and multiple methodological approaches is both legitimate and desirable if established models and understandings are to be questioned and knowledge furthered. Adopting the principles of methodological pluralism does not render the choice of method arbitrary, but emphasises the context-sensitivity inherent in research design. Indeed, many researchers argue that quantitative methods should be combined because theory building required 'hard' data for uncovering relationships and 'soft' data for explaining them (see Loosemore *et al.*, 1996).

Mingers' (1997: 9) methodological pluralism may be considered in three ways. Loose pluralism suggests that a discipline should support and encourage a variety of paradigms and a range of methods without prescribing how they should be used and applied. Complementarism views regarding different paradigms as internally consistent and therefore more or less appropriate for a particular situation. Strong pluralism holds that most situations are best dealt with by a blend of methodologies originating from different paradigms. In a similar vein, Hammersley (1996; cited in Bryman and Bell, 2003: 482) classifies multi-strategy research into three broad approaches. 'Triangulation' refers to the use of qualitative research to corroborate quantitative research (or vice versa); 'Facilitation' is where one research strategy is employed in order to aid research using another approach; and 'Complementarity' is where two strategies are employed in order to dovetail different aspects of an investigation. In management science research, Complementarism (cf. Flood and Jackson, 1991)



concerns the selection of a methodology for a particular intervention rather than the combination of parts of methodologies together (Mingers and Gill, 1997: xv). The practice paradigm of linking of different aspects of methodologies has been termed 'multimethodology' by Mingers and Gill, and in many respects exemplifies the principles of methodological pluralism. Indeed, Mingers (1997) refers to this principle as 'strong pluralism' because of its emphasis on blending methodologies from different paradigms within a single intervention.

The theoretical attractiveness of multimethodology lies in its abilities to enable the handling of problematic situations which require the effective linking of judgement and analysis (Rosenhead, 1997). In other words, it provides a framework for utilising the plurality of methodologies in order to understand or intervene in a complex situation. Given the inherent complexity of the construction industry as an arena within which to conduct research, and the problem-focused orientation of construction management research (see Harty and Leiringer, 2007), the theoretical benefits of multimethodology seem obvious. Thus, in some respects the future development of construction management research will depend upon the willingness of its research community to see qualitative and quantitative research as complementary rather than competitive and mutually exclusive (Loosemore et al., 1996).

The analysis presented above also reveals the narrowness of the methods employed in construction management research. A shift towards multimethodological perspectives on research design brings with it a need to embrace a greater multiplicity of different methods. For construction management researchers this will mean a greater emphasis on qualitative enquiry. There is no room within this chapter for an in-depth treatise on the multiplicity of methods that fall under the broad heading of qualitative research (see Denzin and Lincoln, 2000; Cassell and Symon, 2004; and Silverman, 2004, 2005 for this). Moreover, it is important to stress that qualitative research is a complex, changing and contested field (Denzin and Lincoln, 2000) which is characterised by its diversity (Punch, 2005: 134). Indeed, some writers have criticised attempts to classify qualitative research as a generic approach to doing research (Silverman, 1993). Nonetheless, a broader outlook with regards to the application of research methods is a prerequisite for embracing the principles espoused above.

## Challenges in undertaking multi-paradigm research

As could be expected given the polarised debate which divides those in the positivist and interpretivist camps, combining methodologies is not without its critics. Indeed, although this chapter has advocated multi-paradigm and multi-strategy research approaches, combining methods and methodologies is by no means a straightforward undertaking. A range of philosophical, cultural and psychological hurdles confront the multi-paradigm researcher, each of which renders it a highly problematic undertaking.

According to Bryman and Bell (2003: 480) the argument against multi-strategy research methods essentially rests on two arguments. Firstly, research methods carry epistemological commitments. The embedded nature of methods is such that they are inexorably connected to the views of the world from the paradigm from which they originate. This 'paradigm incommensurability thesis' suggests that researchers must choose the rules under which they undertake research based on the fundamental assumptions that they bring to their enquiry (Mingers, 1997: 13). Thus, seeking to understand a practitioner's perspective on a situation is consistent with interpretivism,

but inimical to positivism. A second challenge is that quantitative and qualitative research represent *separate* paradigms. In other words, quantitative and qualitative approaches are underpinned by different assumptions and methods which are incompatible between paradigms. Of course, these arguments are predicated on the view that quantitative and qualitative research are in fact research paradigms, even though areas of commonality exist between them. Nevertheless, as was discussed above, research methods tend to be rooted in particular epistemological positions.

Mingers (1997: 14–15) takes this line of thinking further in problematising the linking together of research methods across different research paradigms. He suggests that paradigm sub-cultures exist within management science disciplines which are shaped by the backgrounds of researchers. Individuals' methodological preferences will be reinforced by the institutional, physical and geographic boundaries around which they coalesce. Mingers also points towards cognitive barriers in that predilections towards particular paradigms may be so entrenched as to prevent the adoption of seemingly competing philosophical standpoints. Given this backdrop, it is little wonder that most researchers nail their colours to a particular philosophical mast and root their work within a distinct methodological paradigm. The danger for those eschewing the tendency to position themselves in a particular camp is to run the risk of finding themselves in a methodological 'no mans land'! Thus, those embarking on this journey must have the courage to challenge the historical values which have hitherto maintained the paradigmatic intransigence of those on both sides of the epistemological divide. But it is only by demonstrating the potential of methodological pluralism that entrenched attitudes are likely to shift, and a richer understanding of the practice of construction management and the workings of the industry's organisations and projects is likely to emerge.

## Conclusions

This chapter has discussed the implications of the apparent narrowness of the construction management research community's methodological outlook and the implications for understanding of the practice of construction. The construction management field appears to be firmly rooted within the positivist tradition. It has shown both an entrenched adherence to positivist methods within the community, and a significant reliance on open-ended interviews by those adopting qualitative methods. Clearly, no claims can be made as to the broader significance of these findings as they do not provide evidence of methodological trends. However, given the methodological debates of the mid-1990s, they do provide limited evidence of an apparent reluctance to embrace paradigmatic change. Moreover, they present a view of a community reluctant to adopt the kinds of radical qualitative research methods which could provide richer insights into industry practice. The apparent lack of methodological diversity, coupled to an apparent lack of adventure in interpretative research design, suggests a research community rooted in methodological conservatism and disconnected from the debates going on in many of the fields from which it draws. An enduring adherence to the positivist paradigm will do little to enable construction management researchers to grasp the meaning of social action from the perspective of the actors involved.

Many of the research approaches, methodologies and methods espoused within the other chapters of this book offer routes for addressing the problems alluded to within this chapter. It has been argued that those engaged in social science research in construction management could usefully embrace multi-strategy or 'multimethodology'

research design in order to better understand the complex network of relationships which shape industry practice. This radical perspective eschews traditional dualisms by suggesting that no single methodology can ever provide a complete picture of the projects and organisations that form the arenas for construction management research. Adopting a diversity of approaches would move the construction management research community towards a more balanced methodological outlook and would begin to challenge the dominant positivist paradigm which seems so pervasive within the community. This is not to suggest that there is no place for positivism in construction management research, but that used in isolation such perspectives do not provide the types of insights required. As Mingers (1997: 9) states

Adopting a particular paradigm is like viewing the world through a particular instrument such as a telescope, an X-ray machine, or an electron microscope. Each reveals certain aspects but is completely blind to others ... each instrument produces a totally different, and seemingly incompatible, representation. Thus, in adopting only one paradigm one is inevitably gaining only a limited view of a particular intervention or research situation ... it is always wise to utilize a variety of approaches.

Advocating the combination of methodologies rejects some of the traditional dualisms which have seemingly pervaded the discourse of how we should undertake construction management research in the past ten to fifteen years. As has been explained however, the benefits of holism – combining methodological perspectives in order to gain richer insights and a more complete understanding of social phenomena – are particularly persuasive in the context of doing research in the construction sector. A more expansive outlook towards mixing methodologies and research paradigms could yield deeper insights into, and understanding of, the way that practitioners ‘do’ management in the construction sector. Techniques such as triangulation, facilitation and complementarity (cf. Hammersley, 1996) all offer the potential to overcome the weaknesses of single-paradigm approaches, whilst multimethodology – the combination of parts of methodologies together – offers particular advantages for the use of systems or operational research techniques (Mingers and Gill, 1997). However, mixing paradigms in this way will require adventure and courage on the part of researchers if they are to challenge the paradigmatic intransigence which is seemingly so ingrained within the construction management research community.

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## Note

- 1 It should be noted that on several occasions the nature of the data collected and the methods employed was ambiguous. Although a reasoned judgement has been made based on the contents of the paper and the nature of the results, the accuracy of these assertions cannot be guaranteed given the lack of detail within the papers.

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