

Varieties of relationship between research and theory

John Rooke

Citation:

Rooke, J. A. (2007) 'Varieties of Relationship Between Research and Theory,' in L. Koskela & P. Roberts (Eds.), *Towards the Foundation of Theory for the Built Environment* 139-148, School of the Built Environment, The University of Salford, Greater Manchester, UK. Paper presented at Digital World Centre, Salford, 18th -19th June.

Email: j.a.rooke@eml.cc

Abstract:

This paper addresses the proposal that the Unique Adequacy (UA) requirement of methods should be employed as a criterion for research evaluation. Initially, four types of research are identified. The UA concept is employed to distinguish between these different approaches to construction management research according to their relationship to theory. It is found that the distinction between strong and weak forms of the UA requirement, combined with the distinction between empirically and theoretically driven generate a cross-classification matrix which can accommodate a wide range of approaches. It is shown that action research can resolve a paradox generated by an empty class in the matrix.

Keywords:

Unique adequacy, UA, research, theory, empirical research

1. Introduction

As a multi-disciplinary endeavour, Construction Management contains a variety of different approaches to research and theory. The existence of different types of research implies that a variety of standards are applicable to the different practices involved. This has led on occasion to debate (Raftery, McGeorge & Walters 1997; Seymour, Crook & Rooke 1997; Runeson 1997), to confusion (Rooke, Seymour & Crook 1997) and failure to adhere to meaningful standards (Runeson 1997).

This paper is oriented to the recommendation of the Unique Adequacy (UA) requirement of methods as a standard for sound research practice (Rooke & Kagioglou 2007). Recognising the variety of approaches to research is a necessary precondition to the meaningful application of any such standard. Thus, the paper sets

out to provide a taxonomy of research approaches. Initially, four types of research are identified:

1. uniquely adequate;
2. grounded theory;
3. theoretically informed;
4. formal.

These types are initially distinguished in the light of the Unique Adequacy (UA) requirement of methods (Garfinkel & Weider 1992; Rooke 1997) which is introduced in the next section. The types are described with examples in the four subsequent sections.

Subsequently, the technique of cross-classification (Mills 1970; Baldamus 1971) is used to further explore the underlying pre-theoretical decisions (Garfinkel 1952) that characterise these approaches. Finally, action research is suggested as a fifth type of research which fills an empty class generated in the cross-classification.

2. The UA Requirement

The Unique Adequacy (UA) requirement of methods addresses the problems stemming from the significance of conscious action in constituting human organisation. These may be summarised as: first, that objectivity is a problematic concept in such studies; second, that the determination of meaning is their primary goal; and third, that formal procedures, whether as methods of research or explanation, have significant limitations (Seymour & Rooke 1995). The UA requirement has two forms: the weak form demands that the researcher is competent in the research setting; the strong form, that research reports use only concepts that are constituent of the research setting (Garfinkel & Weider 1992; Rooke & Seymour 2005). Thus, the weak form is a criterion for understanding, while the strong form is a criterion for reporting. The strong form cannot be fulfilled unless the weak form is fulfilled also (Rooke & Seymour 2005).

The UA requirement draws attention to the fact that members of the construction industry have their own ideas about what they are doing, regardless of what we as theorists may say about them. More fundamentally, it is the ideas that they have about what they are doing that constitutive their activities. If a metaphor may be permitted: if a concrete frame is made from steel and concrete; then, a construction project is made from the ideas held by the people taking part in that project. An

achieved understanding of these ideas must be logically prior to any attempt to propose hypothetical causal relationships. The requirement of researcher competence is a requirement for a kind of knowledge that is traditionally neglected in academic endeavour: the practical ability to perform in a setting. It is about 'knowing how,' rather than 'knowing that' (Ryle 1963).

Moreover, while formal research methods (such as, *inter alia*, the hypothetico-deductive method, the structured interview, or the controlled experiment) have their place, the determination of meaning relies on the ordinary 'documentary method' of human interaction (Garfinkel 1984). That is to say, in researching an unfamiliar industry setting, the researcher learns about it in the same way that any other person would learn about it when entering it for the first time. Thus, although the UA requirement is derived from the sociological discipline of ethnomethodology, the intention here is not to recommend an ethnomethodological programme of enquiry, but to explore the consequences of a wider application of the principle to construction management research in general. It will be argued that the weak form is universally applicable to construction management research.

3. UA Research

UA research is research that meets the strong requirement. Such studies depend upon the researcher developing competence in a setting, that is to say, learning how to behave in that setting without attracting censure from other members (the weak requirement). A key question which arises is, to what extent such research can be properly informed by interview data alone? On the one hand, we ordinarily learn about a setting by being told about it in a way that differs little from the descriptions that are offered in semi-structured interviews. On the other, such second hand accounts do not have the authenticity of first hand experience. They constitute 'knowing that,' rather than 'knowing how' and may miss important details of the setting, leading to misunderstanding.

A UA report of a research setting displays an indifference to theory, rejecting any attempt to explain or evaluate the setting in terms that are not indigenous to it. This quality of a research report was initially named ethnomethodological indifference (Garfinkel 1984). The strong form of UA may be regarded as the weak form, plus ethnomethodological indifference.

Typically, UA reports are ethnomethodological studies, though research reports meeting the strong requirement (or coming close to meeting it) have been identified in other disciplines (Rooke & Seymour 2005). These latter studies may be brought together under the heading 'simple ethnography'. Examples are: Seymour & Hill (1995); Button & Sharrock (2002); Eckert & Boujut (2003); Rooke & Clark (2005).

Early ethnomethodological (Cicourel 1964; Garfinkel 1984; Wieder 1974) studies often have the additional quality of focusing on the research methods employed as a topic in their own right, with consequences for the critique and development of research methodology.

4. Grounded Theorising

Grounded theory research should meet the weak requirement, inasmuch as it seeks to derive theoretical insight from an empirical understanding of the research setting (Glaser & Strauss 1967; Glaser 1992). Rooke & Kagioglou (2007) demonstrate the application of the weak requirement to an exercise in grounded theorising (Dainty, Bryman, Price, Greasley, Soentanto & King 2005).

In grounded theorising, the intention is to develop a theoretical contribution and this may require that the research report breaches the strong requirement by introducing theoretical concepts in addition to those at work in the setting. However, it is not clear to what extent such research does actually contribute additional theoretical insight, beyond a UA understanding of the setting. Much depends on what is meant by 'theory'. In report that is widely recognised as UA, Sacks, Schegloff & Jefferson (1974) describe conversational practices using terms that would not be familiar to the members of the settings under study. However, these terms are purely descriptive in nature. The same might be said of the grounded theory work that has been carried out in construction management (Dainty, Bagilhole & Neale 2000; Rooke, Seymour & Fellows 2003; Dainty, Bryman, Price, Greasley, Soentanto & King 2005).

By contrast, a dispute has arisen between the two founders of the grounded theory approach as to the extent that it is legitimate to introduce pre-formulated theoretical terms into grounded theory analysis (Glaser 1992; Strauss & Corbin 1998). Others have wished to broaden the approach, stipulating only that theorising should take place simultaneously with ethnographic fieldwork (Charmaz & Mitchell 2001). At one extreme, then, it can be difficult to distinguish between grounded theory and UA research; at the other, between grounded theory and theoretically informed research.

5. Theoretically Informed Research

The term 'theoretically informed research' refers here to research that draws upon theory in a manner that is not formally specified. There are a wide variety of approaches that fall into this class.

At one extreme, theory may be drawn upon in ad hoc manner to explain, elucidate or 'dress up' findings. This is likely to be seen as a naughty practice by both positivists and ethnomethodologists, though it is probably more widely practised than is usually recognised. From the pragmatic point of view of a management discipline, it has much to recommend it, though it does little to further the principled pursuit of either theory building or ethnomethodological understanding.

On the other hand, such ad hoc theorising might be a form of grounded theorising as discussed above. It might be an adjunct to an exploratory, or scoping study. It might be a preliminary to a more systematic theoretical development, or application of already existing theory. It might also be research which does arise from a principled application of existing theory, but uses informal ethnographic or historical methods to test or extend this.

It is clear that the extent to which research is theoretically informed, it does not meet the strong requirement. An alternate reporting criterion is Schutz's Postulate of Adequacy. This stipulates that the theoretical concepts used should be understandable by members of the research setting in common sense terms. In this way, the point(s) of view held by the subject(s) of the research are taken into account in the formulation of theory.

Whatever level of theorising is achieved, it is important that the theory remains true to its empirical referents. Thus, observation of the weak requirement remains a useful test of the validity of the findings.

Some examples of theoretically informed research are: Bresnen (1990); Kranakis (1997); McCabe, Rooke, Seymour & Brown (1998).

6. Formal Research

Formal research is a type of theoretically driven research which follows a pre-conceived plan. This is a very common approach in construction management, even for the investigation of acknowledgedly 'soft' topics, such as culture or behaviour change (Duff, Robertson, Cooper & Phillips 1993; Fisher & Ranashinghe 2001; Tam, Fung & Chan 2001; Phua & Rowlinson 2004; Zhang & Liu 2006). A positivist model may be adopted, such that a hypothesis is generated from an established body of theory. A research protocol is then devised which is intended to test the hypothesis and thus contribute to the orderly growth of knowledge. The results of such enquiries often take a statistical form.

As with theoretically informed research, the strong UA requirement is not pertinent to formal research, but the arguments for Schutz's Postulate of Adequacy and the weak form of the requirement are valid.

7. Cross-classification of research types

In this section, the distinctions drawn above are explored further using the technique of cross-classification (Mills 1970; Baldamus 1971). If the distinction between strong and weak UA requirements is used to form one of the classificatory dimensions, a meaningful cross classification can be achieved by distinguishing between empirically and theoretically driven research. As is the case so often in this kind of exercise, an empty class is generated, providing a theoretical puzzle (Baldamus 1971).

Table 1: Initial cross-classification of research types

	strong requirement	weak requirement
empirically driven	simple ethnography ethnomethodology	grounded theory some theoretically informed
theoretically driven		some theoretically informed formal

Given that the strong requirement deliberately precludes importing theoretical conceptions from outside the setting into the research report, there would appear to be strong logical objections against any candidate to fill the strong requirement/theoretically driven class. However, the paradox can be resolved and the empty class filled by moving outside the traditional assumptions of academic research.

8. Cross-classification of research types

The category 'action or construction research' covers a range of activities, the defining feature of which is that they seek to make a direct contribution to practice. Thus, it is practical rather than academic research and is widely regarded as second class research within academe, the assumption being apparently that such research, while it may contribute to practice, cannot contribute to theory. Runeson (1997:300) states for instance that, "producing normative advice is not science, at least not in the positivist tradition and is therefore not subject to judgement by scientific methodology." Nonetheless, Argyris, Putnam & Smith (1985) have argued for the credentials of action research in relation to the conventional scientific paradigm. The idea that the provision of normative advice is beyond the remit of science is directly challenged by Kasanen, Lukka & Siitonen (1993:245) who point to the existence of constructive studies in "technical sciences, in clinical medicine and in operations research." Lukka (2000) has suggested that the positivist correspondence notion of truth should be supplemented with a pragmatist notion.

These arguments are of direct concern here only in as much as they point to the continuing perceived need to establish a research approach that combines practical efficacy and academic rigour. Their resolution will require a deeper examination of the conception of truth in various traditions. This is beyond the remit of the current paper.

More important for the purpose of this paper is the suggestion that there is a particularly strong relationship between action research and UA (Goode 1997; Rooke & Seymour 2005). This relationship allows the possibility of resolving the paradox and rendering a powerful form of research that simultaneously tests and informs theory, while informing and improving practice.

Although action research may involve the application of a theory, the success of implementation demands that members of the setting accept the theoretically recommended course of action. Implementation constitutes a rigorous test of, among other things, the theory's basis in UA understanding (weak requirement). Successful implementation means that the theory (as implemented) becomes constitutive of the setting, facilitating the production of a UA report (strong requirement).

The value of producing action research reports to the strong requirement of UA is twofold:

1. it constitutes a particularly strong test of theory, requiring that the report includes not simply the successful prediction of an outcome, but the unique process by which that outcome was achieved;

2. it supports more effective replication, specifying in detail the methods and conditions of implementation.

Table 2: Cross-classification of research types including action and constructive approaches

	strong requirement	weak requirement
empirically driven	simple ethnography ethnomethodology	grounded theory some theoretically informed
theoretically driven	action/constructive	some theoretically informed formal

9. Conclusion

Rooke & Kagioglou (2007) advocate the two forms of the UA requirement as criteria for evaluating research in construction management. The purpose of this paper has been to show how UA is relevant to the broad range of approaches in the subject area. Five broad types of research have been identified. These have been classified according to two dimensions of the relationship between research and theory: (1) the theoretical input into the investigative process; and (2) the theoretical input into the research report. It has been argued that the weak UA requirement (UA understanding) is a pertinent standard for all forms of research, while the strong requirement is pertinent to: ethnomethodology/simple ethnography; some grounded

theorising; and action research. This classification should enable appropriate application of the two forms of UA requirement as evaluative criteria.

References:

- Agyris, C., Putnam, R. & Smith, D. M. (1985) *Action Science*, Jossey-Bass, San Francisco.
- Baldamus, W. (1971) 'Cross-Classification,' *Discussion Papers, Series E: Social Science Methodology*, Faculty of Commerce and Social Science, University of Birmingham.
- Bresnen, M. (1990) *Organising Construction: Project Organisation and Matrix Management*, Routledge, London.
- Button, G. & Sharrock, W. W. (2002) Operating the Production Calculus: Ordering a Production System in the Print Industry. In *British Journal of Sociology*, 53(2):275-290.
- Charmaz, K. & Mitchell, R. G. (2001) 'Grounded Theory in Ethnography', in P. Atkinson, A. Coffey, S. Delamont, J. Lofland & L. Lofland (eds.) *Handbook of Ethnography*, Sage, London.
- Cicourel, A.V. (1964) *Method and Measurement in Sociology*, Free Press, London.
- Dainty, A. R. J., Bryman, A., Price, A. D. F., Greasley, K., Soentanto, R. & King, N. (2005) 'Project affinity: the role of emotional attachment in construction projects,' in *Construction Management and Economics* 23(3):241-244.
- Dainty, A. R. J., Bagilhole, B. M. & Neale, R. H. (2000) 'A Grounded Theory of Women's Career Under-Achievement in Large UK Construction Companies', in *Construction Management and Economics*, 18():239-250.
- Duff, A. R., Robertson, I. T., Cooper, M. D. & Phillips, R. A. (1993) Improving Safety on Construction Sites by Changing Personnel Behaviour, HSE Contract Research Report No. 51/1993, HMSO.
- Eckert, C. & Boujut, J-F. (2003) 'The Role of Objects in Design Co-Operation: Communication through Physical or Virtual Objects', in *Computer Supported Cooperative Work* 12:145-151.
- Fisher, T. F. & Ranasinghe, M. (2001) 'Culture and Foreign Companies Choice of Entry Mode: The Case of the Singapore Building and Construction Industry' in *Construction Management and Economics*, 19(4):343-353.
- Garfinkel, H. (1952) *The Perception of the Other*, unpublished PhD thesis, Harvard University, Cambridge, Massachusetts.
- Garfinkel, H. (1984) *Studies in Ethnomethodology*, Polity Press, Cambridge.
- Garfinkel, H. & Wieder, D. L. (1992) 'Two Incommensurable, Asymmetrically Alternate Technologies of Social Analysis', in G. Watson & R. M. Seiler (eds.), *Text in Context*, Sage, London, pp. 175-206.
- Glaser, B. G. (1992) *Basics of Grounded Theory Analysis: Emergence v. Forcing*, Sociology Press, Mill Valley, CA.
- Glaser, B. G. & Strauss, A. L. (1967) *The Discovery of Grounded Theory; Strategies for Qualitative Research*, Weidenfeld & Nicholson, London.

- Kasanen, E., Lukka, K. & Siitonen, A. (1993) 'The constructive approach in management accounting research,' *Journal of Management Accounting Research*, **5**(Fall):243-264.
- Kranakis, E. (1997) *Constructing a Bridge: an exploration of engineering culture, design and research in nineteenth-century France and America*, The MIT Press, London.
- Lukka, K. (2000) 'The Key Issue of Applying the Constructive Approach to Field Research,' in T. Reponen (Ed.) *Management Expertise for the New Millenium: In commemoration of the 50th anniversary of the Turka School of Economics and Business Administration*, Publications of the Turka School of Business Administration.
- McCabe, S., Rooke, J., Seymour, D. & Brown, P. (1998) 'Quality Managers, Authority and Leadership', *Construction Management and Economics*, **16**(4):447-457.
- Mills, C. W. (1970) *The Sociological Imagination*, Penguin, Harmondsworth.
- Phua, F. T. & Rowlinson, S. (2004) 'Operationalizing culture in construction management research: a social identity perspective in the Hong Kong context,' in *Construction Management and Economics* **22**(9)913-925.
- Raftery, J., McGeorge, D. & Walters, M. (1997) 'Breaking up methodological monopolies: a multi paradigm approach to construction management research,' *Construction Management & Economics*, **15**(3)291-297.
- Rooke, J. (1997) 'Developing a More Empirical Approach to Culture, Attitude and Motivation in Construction Management Research: A critique and a proposal,' in *Journal of Construction Procurement*, **3**(2):45-55.
- Rooke, J. & Clark, L. (2005) 'Learning, knowledge and authority on site: a case study of safety practice', *Building Research and Information*, **33**(6):561-570.
- Rooke, J. & Kagioglou, M. (2007) 'Criteria for evaluating research: the unique adequacy requirement of methods,' *Construction Management and Economics* (forthcoming).
- Rooke, J. & Seymour, D. (2005) 'Studies of Work: Achieving Hybrid Disciplines in IT Design and Management Studies', *Human Studies* **28**(2):205-221.
- Rooke, J., Seymour D. & Crook, D. (1997) 'Preserving Methodological Consistency, a Reply to Raftery, McGeorge and Walters', *Construction Management and Economics*, **15**(5):491-494.
- Rooke, J., Seymour, D. & Fellows, R. (2003) 'The Claims Culture; A Taxonomy of Industry Attitudes', in *Construction Management and Economics*, **21**(2):167-174.
- Runeson, G. (1997) 'The role of theory in construction management research: comment,' *Construction Management & Economics*, **15**(3):299-302.
- Ryle, G. (1963) *The Concept of Mind*, Penguin, Harmondsworth.
- Sacks, H., Schegloff, E. A. & Jefferson, G. (1974) 'A Simplest Systematics for the Organisation of Turn-Taking for Conversation', in *Language*, **50**:696-735.

- Seymour, D. & Hill, C. (1995) 'The Firstline Supervisor in Construction: A Key to Change?' in *ARCOM 95, Proceedings of the Eleventh Annual Conference of the Association of Researchers in Construction Management*, Loughborough University.
- Seymour, D. & Rooke, J. (1995) 'The culture of the industry and culture of research', in *Construction Management and Economics*, **13**(6):511-523.
- Strauss, A. L. & Corbin, J. (1998) *Basics of Qualitative Research: Procedures and Techniques for Developing Grounded Theory* (second edition) Sage, London.
- Tam, C. M., Fung, I. W. H. & Chan, A. P. C. (2001) 'Study of Attitude Changes in People After the Implementation of a New Safety Management System: The Supervision Plan', in *Construction Management and Economics*, **19**(4):393-403.
- Wieder, D. L. (1974) *Language and Social Reality*, Mouton, The Hague.
- Zhang, S. B. & Liu, A. M. M. (2006) 'Organizational culture profiles of construction enterprises in China,' in *Construction Management and Economics*, **24**(8):817-828.