

The application of cognitive mapping methodologies in project management research

Andrew J. Edkins^{a,*}, Esra Kurul^b, Eunice Maytorena-Sanchez^c, Kai Rintala^d

^a School of Construction and Project Management, The Bartlett, UCL, London WC1E 6BT, United Kingdom

^b Department of Real Estate and Construction, Oxford Brookes University, Gypsy Lane, Oxford OX3 0BP, United Kingdom

^c Manchester Business School, University of Manchester, Booth Street East, Manchester M15 6PB, United Kingdom

^d Department of Construction Economics and Management, University of Cape Town, Private Bag, Rondebosch 7701, South Africa

Abstract

Projects are complex temporary entities that exist to achieve an objective for the owner/client/sponsor. Whilst there are many systems and techniques used to progress project management, less is known about the way that the management of a project is understood by those involved. This paper explores a range of methodological approaches, drawn from the area of managerial and organisational cognition (MOC), employed to understand more fully and rigorously the broader attributes of the Management of Projects (MoP) beyond the more execution orientated Project Management (PM). The dataset used are 11 construction projects within the United Kingdom with varying levels of complexity, size and scope. By deploying methodologies such as computer-aided content analysis and causal mapping, the layers of complexity were first separated and then distilled. We conclude by reflecting on the value in adopting primarily qualitative methodologies to multi-organisational, case-based research enquiries.

© 2007 Elsevier Ltd and IPMA. All rights reserved.

Keywords: Cognitive mapping; Content analysis; Complex processes

1. Introduction

Whilst many projects are carried out on a daily basis within a single organisation and with minimal formality, there are at the other extreme, complex projects that are multi-organisational and significant in terms of the resources the project consumes, the outputs the project produces and legacy of outcomes that it leaves [1].

The ‘management of projects’ (MoP) school of thought [1] builds on the more traditional execution orientated project management school of thought (for example [2]) by broadening the required range of expertise, from the technical to the strategic and by exploring the front-end project issues [3,4]. MoP is practised widely in a number of sectors such as aerospace, defence, information and communication technology, pharmaceutical, petrochemical, process

engineering, and construction. Here, MoP (obviously including first class PM) is business critical to the organisations that exist to serve these markets and achieving project success is paramount. This means that in addition to delivering projects to the traditional project management metrics of time, cost, and quality/performance, one must also take account of the greater variety of specific success criteria that each set of sponsors/clients/users will have, typically orientated to the strategic or policy intent that drove the initial need for the project [5].

In this world of projects there is a powerful argument for exploring projects in the construction industry. The size of the construction industry in many modern economies remains large. The economic contribution is typically in the range 5–10% of GDP and the sector involves a large range and number of companies registered, workers employed, and training required. The projects that are the industry’s delivery mechanism remain a challenge in terms of achieving ex ante aims and expectations for clients

* Corresponding author.

E-mail address: andrew.edkins@ucl.ac.uk (A.J. Edkins).

and other key stakeholders. This is reflected in the stock market valuation of many publicly-listed construction companies.

In this context, this paper explores a range of qualitative methodological approaches drawn from the area of managerial and organisational cognition (MOC), employed to understand more fully and rigorously the attributes of issues that have now fallen under the term ‘The Management of Projects (MoP)’ in the construction sector. Four research enquiries were conducted, each exploring specific aspects of a total of 11 construction projects in different environments. Each had a specific focus in an area of the projects that had been poorly researched at the time. These were:

- (1) The management of design.
- (2) The issue of conversion of building structure for alternative use.
- (3) The modern use of heritage buildings.
- (4) The challenges of a modern procurement practice.

These separate research endeavours reflect a growing interest in the earlier stages and strategic imperative underpinned by those that have adopted an MoP frame of reference, and this is reflected in the revisions to the bodies of knowledge that serve the profession of project management [6,7]. With this expanding understanding of project issues and challenges, the social science researcher is faced with the requirement to comprehend the complexities, and of determining a clear and coherent picture of what is contained within the project and its management. The context for the four research enquiries was to understand more about specific issues facing those that managed projects.

The enquiries accepted without challenge that those individuals who were involved in the projects explored were best placed to explain what they understood to be the nature of the project, its processes, issues, and remedies. In so doing, it was beyond the research enquiries’ objectives or remits to examine where these individuals derived their underpinning knowledge, beliefs, or assumptions. The experimentation with MOC orientated methods and the apparent success of the results is hence proposed as an additional contribution to the methodological body of knowledge that can be considered by others researching this or a similar area of study.

2. The challenges of research in inter-organisational projects

When researching inter-organisational projects, the presence of many players from different organisations leads to the opportunity for there to be multiple objectives and measures of success. These may not be coherent or aligned. This is the case with construction projects, which are created at a certain time, in or for a certain place, and to respond to specific needs. Understanding multiple objectives enables the project team as a whole to evaluate the

effects of its actions in complex projects where a large number of variables interact [8]. It also mitigates the need to simplify and stabilise complex situations, which is a norm for mainstream project management approaches that rely heavily on task scheduling.

Williams [9] notes that as projects become increasingly complex, so traditional project management approaches become inadequate. Hence the methodological approaches needed to research inter-organisational projects must have the potential to identify and analyse complexity and allow for a more detailed insight into the processes involved. The anticipated result being able to better understand and learn about what actually constitutes effectiveness and efficiency instead of employing methods that necessitate premature or arbitrary simplification to the standard success criteria of time, cost and quality or hypothetical process and/or decision-making protocols. Williams [10] notes the contribution made by those developing largely quantitative models of project management by operational researchers, but importantly, stresses the value of the systemic models derived from qualitative data as illustrated by the work of Eden et al. [11]. The epistemological drivers for this approach are more akin to the Soft Systems Methodology [12] than to the more structured approach postulated by control theory and cybernetics [13]. In this environment individuals involved in managing a project are influenced by the bounded rationality that each player has when dealing with scarce and limited information, and their varying ability to be able to process that information to yield understanding allowing management and decision making to occur.

The research challenge that is common to the four research enquiries presented in this paper was the objective of connecting and/or combining multiple perspectives from those involved in each of the construction projects studied to allow a meta-truth to emerge that represents that of the project. Case studies were used to explore the rich issues that are to be found in projects and their management [14,15]. As noted, in all four investigations, the issue at the time was largely un-researched and therefore needed to be understood at a deep level. This led to a detailed consideration of case study methodology.

3. Mapping methodologies for case-based research

The methodologies that were used in the four research enquiries all draw upon existing understanding of Managerial and Organisation Cognition (MOC) and in particular the use of cognitive mapping techniques. This has been a growing area of interest amongst social scientists, related practitioners and consultants and is evident in the number of publications [16,???,18–21]. MOC methods have been applied in research in a project context by Eden et al. [11] to study disruption and delays in projects; Williams [22] proposes using causal mapping and system dynamics to model complex projects; Williams et al. [23] used causal mapping to explore risks in projects; and Maytorena et al.

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات