LEARNING TO CO-OPERATE AND CO-OPERATING TO LEARN: CAPTURING KNOWLEDGE OF PARTNERING IN CONSTRUCTION

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Despite the enormous recent interest in partnering, existing research has not delved very deeply into the conditions affecting collaborative contracting over time. Yet many prescriptive approaches emphasise the importance of long term organisational learning and culture change processes. Based upon empirical research on case studies of partnering projects, this paper explores the relationships between partnering strategies, organisational learning and knowledge management practices. It argues that learning to co-operate in the long term is inhibited by problems in capturing project-based knowledge and expertise. The importance of tacit knowledge and individual and team skills further suggests that human resource management practices play a potentially crucial role. However, the research reported here highlights the characteristically informal, unsystematic, pragmatic and short-term approach to managing staff adopted on such projects. The paper concludes that these limitations have obvious implications for the long-term development of partnering strategies.

Keywords: human resource management, knowledge management, partnering, organisational learning.

INTRODUCTION

Proponents of partnering in construction have been arguing for some time now that changing people’s attitudes and behaviour and moving towards a ‘culture of collaboration’ in the construction industry are essential for the long term fitness and survival of firms within the industry (e.g. Bennett and Jayes, 1995, 1998; Bennett et al, 1996). This has led to a considerable amount of attention being paid, by academics and practitioners alike, to exploring the benefits and pitfalls of partnering and the circumstances favouring or inhibiting the development and implementation of such an approach (e.g. Barlow et al, 1997). The result is a proliferation of generalised prescriptions on how to make partnering work - often couched in quite mechanistic terms and presented in the form of manuals, toolboxes, workbooks and the like (e.g. ACTIVE, 1996; Bennett and Jayes, 1998; NEDO, 1991).

As useful as this material is, it often fails to deal explicitly with a number of underlying key contradictions or dilemmas in partnering as a strategic approach towards procurement. In particular, it tends to assume that developing co-operation in the long term involves much the same as it does in the short term. However, this treats as unproblematic the relationship between short-term behaviour and longer term organisational learning, where the firm’s core business is project-based and so defined according to specific task objectives and finite life-cycles. Moreover, the novelty and
Idiosyncratic nature of construction project work poses significant problems and constraints when it comes to attempting to capture, transfer and diffuse knowledge about new ways of working such as partnering. Not only may the requirements for each project be very different, but also knowledge and expertise may be lost as project teams disband and team members are transferred to different projects (Egan, 1998).

This paper is an attempt to explore some of the issues raised when one considers the implications of project-based learning for the long-term development of partnering as a procurement strategy. It sets out to address the question of how knowledge and expertise is diffused within the organisation (and transferred across projects and organisations) in conditions typified by differentiation between professional groups and the constant forming and reforming of project teams. To do so, it draws upon findings from a research project designed to explore collaborative approaches in the UK construction industry. One of the main conclusions to be drawn is that there is commonly a lack of attention paid to the human resource management dimensions of partnering. This poses challenges for project managers attempting to capture knowledge and expertise concerning collaborative ways of working. It also poses problems for organisations seeking to develop or consolidate strategies for partnering in the medium and long term.

PARTNERING IN CONSTRUCTION: KNOWLEDGE MANAGEMENT AND HUMAN RESOURCE ISSUES

During the last decade, partnering has been seen as a way of attempting to deal with the fragmentation and lack of integration between participants that are almost defining features of the industry (Bennett et al., 1996; Bennett and Jayes, 1995; Holti and Standing, 1996). By promoting collaboration, organisational decision-makers hope to generate advantages such as enhancements to communication flow, reductions in waste, continuous improvement and product and process innovation, all with the aim of improving cost, quality and delivery performance (Barlow et al., 1997). Partnering has thus been presented as a way of helping achieve ‘cultural change’ within the industry, away from adversarialism and towards more co-operative ways of working.

However, many unanswered questions remain about the nature of partnering in practice and these questions often centre precisely upon the problems of achieving cultural change and organisational learning in order to adopt new ways of working (see Bresnen and Marshall (2000a) for a more extended review). In effect, faith is placed in the ability of organisations to ‘unlearn’ their existing cultural repertoires and (with appropriate third party help) to replace these with a fundamentally transformed system of values which emphasises co-operation, reciprocity, trust and the alignment of mutual goals. However, the precise ways in which organisations are expected to achieve this ‘double-loop learning’ (Argyris and Schon, 1978) and to enhance their overall capacity for organisational learning is often less than clear.

PARTNERING, ORGANISATIONAL LEARNING AND KNOWLEDGE MANAGEMENT

The problems of organisational learning and achieving cultural transformation are compounded enormously when one considers two important additional aspects of construction activity that affect the capture and codification of knowledge within organisational cultures, practices and routines. First, the finite duration, cyclical logic and idiosyncratic nature of projects makes it difficult to capture, diffuse and apply
knowledge that may only be relevant to particular local circumstances. A key question therefore is how companies can capture localised knowledge and experience of collaboration on projects and convert it into a form that is usable on subsequent projects that may be quite different in both technical and organisational terms.

Second, the importance to partnering of personal skills and tacit knowledge is widely recognised (e.g. Bennett and Jayes, 1995). Yet, the implications of this dependence upon individual skills and project team relationships (in a situation where project teams are constantly being disbanded and reformed) has not really been fully considered in terms of its effects upon knowledge management practices. Clearly, there is considerable opportunity for capturing standardised knowledge through the application of appropriate knowledge management tools and techniques, based on IT systems (cf. Nonaka and Takeuchi, 1995). However, there are limitations to the extent to which many forms of knowledge can be captured and codified in this way.

These limitations become clear when one considers the nature of organisational knowledge relevant to a strategy such as partnering. Blackler (1995), for instance, categorises and distinguishes between forms of organisational knowledge that are embedded in technologies, rules and procedures, encultured in collective understandings, stories, values and beliefs, embodied in the practical ‘know-how’ of individuals and embrained in individuals’ cognitive skills. It is the first of these four types of knowledge that is more easily amenable to codification and thus able to be captured in IT systems, bureaucratic procedures and the like. The other forms of knowledge highlight the importance of individuals and the network of social relationships within which they are situated. These more esoteric forms of knowledge also illustrate how the retention and transfer of knowledge becomes dependent upon the existence of shared systems of meaning that link together members of a particular social community (Weick, 1995).

Despite importance being attached to the development of appropriate ‘tools and techniques’, it is clear that the rhetoric of partnering places a lot of emphasis upon the ‘softer’ side of collaboration, in terms of changed attitudes and expectations and the development of co-operative and trusting relationships. The problem here is that, while the necessary skills can of course be taught and learnt, faith tends instead to be placed on the use of already-skilled individuals coupled with the mechanism of formal team-building. Yet the knowledge and skills needed to develop expertise in collaboration are perhaps rather more tacit and cannot easily be articulated and codified in organisational routines or in practices used to ‘engineer’ collaboration (cf. Nonaka, 1994; Nonaka and Takeuchi, 1995). Moreover, where inter-personal or inter-team relationships are fragmented and transient, any learning that occurs can be ephemeral and this militates further against the effective diffusion of relevant knowledge and expertise. The net effect of these constraints is that the one-off, localised and transient nature of construction projects is likely to inhibit the long term development of strategies such as partnering.

PARTNERING AND THE MANAGEMENT OF HUMAN RESOURCES

Given these potential constraints upon the development of partnering capabilities, it becomes important to consider whether and to what extent the approaches actually adopted in practice increase or decrease the likelihood of firms co-operating constructively in the short term and learning to co-operate in the long term.
Elsewhere, it has been suggested that cultural transformation projects, such as a shift towards collaborative contracting, involve changes to a whole host of inter-related internal practices, including business and procurement strategies, construction and engineering techniques, information systems and project control systems and human resource practices (Holti and Standing, 1996). Arguably, most attention in the literature has been focused upon exploring technical and structural solutions to the problems of partnering, with rather less attention being systematically directed towards exploring human resource management aspects. This would not be surprising, given the comparative lack of attention paid to the development of sophisticated human resource management (HRM) practices within the industry as a whole (e.g. Druker et al., 1996).

However, following the above argument, practices associated with the recruitment, selection and secondment of project team staff would appear to be of vital importance in understanding the internalisation and diffusion of collaborative norms and values in both the medium and long term. Similarly one would expect a number of other personnel management practices to have an important bearing upon the development of appropriate skills and the motivation and commitment shown towards collaborative ways of working. These would include the rewards available - both financial and non-financial (the latter including factors such as intrinsic interest and career development opportunities); the training received and socialisation experienced by project team members; and staff appraisal, development and promotion practices.

So, for example, one might expect people’s motivation to collaborate at an inter-personal level to depend to some extent upon the reward system in place (whether it positively or negatively reinforces collaborative behaviour). Similarly, one would expect the ability to engage in collaborative relationships to be influenced to some extent by the amount and type of training and socialisation received. Certainly, one cannot assume that the willingness and ability of individuals to collaborate is simply determined by the system of structural imperatives built into organisational hierarchies (Bresnen and Marshall, 2000a). Overall, therefore, project staffing, team-building and other personnel management practices are likely to play an important part in affecting knowledge retention and transfer, given the importance of the tacit knowledge of individuals and the collective experience of teams.

It is possible, therefore, to see the development of collaborative approaches as, to some extent, an ‘HRM problem’. There is, of course, considerable debate about the nature, meaning and coherence of HRM in theory and in practice, as well as about its relationship with personnel management practice (see Legge (1995) for a wide-ranging and critical account of the HRM phenomenon). However, commentators do tend to agree that approaches labelled ‘HRM’ generally tend to fall into one of two broad approaches (Guest, 1987; Legge, 1995). ‘Hard’ approaches to HRM are very utilitarian and instrumental in basic philosophy. They stress the close integration of HR systems with the strategic objectives of the organisation and treat human resources essentially as just another factor of production and cost, whose use is intended to be optimised. Research in the construction sector suggests that there is some evidence of this ‘hard’ orientation in contractor’s personnel management practices (Druker et al., 1996). In contrast, ‘soft’ approaches to HRM, while also stressing integration, are more humanistic in orientation. They tend to put greater emphasis on motivational and developmental aspects and treat the individual as an asset and valued resource with major contributions to make to the company’s performance in the longer term.
One obvious question of importance here is the extent to which partnering reflects in practice a more utilitarian or developmental philosophy when applied to the management of people. It could be argued, for example, that recipes for partnering in the literature attach a good deal of importance to issues of motivation, commitment, trust and co-operation, in ways which imply the need for a ‘softer’ approach. On the other hand, it is clear from prescriptions for single-project partnering that a good deal of emphasis is placed upon the shaping of behaviour through formal charters, incentive systems, teambuilding and the like (Bresnen and Marshall, 2000b). A more fundamental question, of course, concerns the extent to which personnel practices are considered to be at all important to the development of partnering in practice. Indeed, why bother with these concerns, if appropriate reinforcement through organisational incentives is all that is needed to reinforce motivation and commitment?

**RESEARCH AIMS AND METHODOLOGY**

In order to address these questions, the research reported here sought to examine, among other things, the impact that staff recruitment, transfer and secondment practices and processes of team selection and teambuilding had upon the capture and transfer of knowledge about partnering. It also explored the role of staff training, appraisal and development in the promotion of appropriate skills and abilities.

The data were drawn from case studies of medium- to large-scale construction projects undertaken by experienced clients across the industry. A multiple case design was used to allow comparative analysis and to help assess the transferability of collaborative practices. The selection of cases was made to allow for sufficient variation in project type and in project size (defined according to value). Availability was also an important practical selection criteria, since the work involved collaboration with eight industrial companies and the cases were selected mainly from the companies’ current portfolios of projects. Cases were also selected so that their period of study began roughly at the same point in time (the transition from design to construction stages) and so that some longitudinal, ‘real time’ study was possible.

Given the need for in-depth analysis and flexibility in the field, qualitative research methods were used. Semi-structured interviews were the main form of data collection and 158 interviews were conducted (averaging 18 per case). In order to capture the range of perspectives represented, these included a selection of team members from different departments and levels within each main participating organisation (client, designers, main contractor), as well as interviews with subcontractors’ representatives.

The fieldwork was conducted between March 1997 and May 1998. Details of the projects are given in Table 1.

The projects ranged from £9 million to £400 million in value and included two oil and gas projects (one offshore, one onshore), two process plants, two civil engineering and three building projects. Case study A was a joint venture, cases B to E were partnerships, cases F and G were single project alliances and cases H and I were more conventional projects (a construction management and ‘traditional’ JCT contract, respectively). There was no simple relationship between project type or size and method of procurement. Instead, the method selected reflected the commercial aims of the project and, in some cases (A, C, F and G), broader procurement policies or strategies (such as the rationalisation of supply bases or a shift to outsourcing).
### Table 1: The Case Studies

<table>
<thead>
<tr>
<th>Project</th>
<th>Description</th>
<th>Value</th>
<th>Sector</th>
<th>Completion</th>
<th>Contractual Arrangement</th>
<th>Tendering and Incentives</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Gas-fired power station</td>
<td>£150m</td>
<td>Process Plant</td>
<td>1999 (middle phase)</td>
<td>Turnkey project (part of 7-year joint venture development scheme)</td>
<td>Negotiated fixed price contract</td>
</tr>
<tr>
<td>B</td>
<td>Airfield civil engineering work</td>
<td>£20m</td>
<td>Civils</td>
<td>Feb 1999 (final phase)</td>
<td>NECC contract under 5-year, £30m framework agreement Design/build (under long-term partnering agreement)</td>
<td>Negotiated target cost with risk/reward element</td>
</tr>
<tr>
<td>C</td>
<td>Hotel building</td>
<td>£27m</td>
<td>Building</td>
<td>Late 1998</td>
<td>Negotiated fixed price contract with target cost with risk/reward element</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Water treatment works</td>
<td>£9m</td>
<td>Civils</td>
<td>April 1998</td>
<td>Modified IChemE Green Book contract under long-term partnering agreement</td>
<td>Competitive tender (suite of projects); target cost with risk/reward element</td>
</tr>
<tr>
<td>E</td>
<td>Industrial gases plant</td>
<td>£80m</td>
<td>Process plant</td>
<td>Mid 1999</td>
<td>Conventional project (but 5-year alliance with mechanical services contractor)</td>
<td>Various, including risk/reward element for alliance partner</td>
</tr>
<tr>
<td>F</td>
<td>Oil refinery plant upgrade</td>
<td>£25m</td>
<td>Process plant</td>
<td>Feb 1998</td>
<td>Project alliance (with standard ICE6 works contract)</td>
<td>Serial contracting; target cost with risk/reward element</td>
</tr>
<tr>
<td>G</td>
<td>Gas production platform (topside component)</td>
<td>£400m</td>
<td>Off-shore</td>
<td>1997</td>
<td>Project alliance (memorandum of understanding)</td>
<td>Competitive tender; conventional and target cost with risk/reward contracts</td>
</tr>
<tr>
<td>H</td>
<td>Corporate headquarters</td>
<td>£200m</td>
<td>Building</td>
<td>Early 1998</td>
<td>Construction management</td>
<td>Competitive tender; standard lump sum package contracts</td>
</tr>
<tr>
<td>I</td>
<td>Office building</td>
<td>£24m</td>
<td>Building</td>
<td>Oct 1999</td>
<td>Conventional JCT80</td>
<td>Competitive tender; fixed price contract</td>
</tr>
</tbody>
</table>

### FINDINGS FROM THE RESEARCH
What follows is a brief summary of the findings of the research with respect to the use of personnel/HRM practices across the case studies. A more complete discussion of the methods and main findings of the research as a whole can be found elsewhere.
(Bresnen and Marshall, 2000b). Observations made refer to both client and contractor staffing and organising practices unless otherwise indicated.

**PROJECT TEAM STAFFING AND SECONDMENT**

It was apparent across the cases that lack of staff availability was a significant constraint on attempts to transmit learning directly from one project to the next (e.g. cases B, D and E). Efforts were being made to address the availability issue in some cases. In case A, for example, the prestige of the project could allow managers to assign preferred individuals. Some of those interviewed also expressed the view that lack of availability could even have a positive effect in helping ‘freshen up’ the team (B, F). However, it was apparent that lack of staff availability was the norm in conditions where companies’ projects were widely dispersed and non-contiguous in time and space.

It could of course, be argued that companies should make efforts to bring together those whom they see as their key staff on particular projects with specific requirements for close collaboration. However, creating such ‘dream teams’ may not only be impractical and uneconomic, it is also short-sighted if the aim is to diffuse partnering expertise more widely throughout the organisation. The other danger is in creating divisions amongst staff within the organisation by effectively creating a two-tier system of managers – those perceived as having the appropriate skills and orientations, and those who are perceived as being better suited to working on more ‘traditional’ contracts.

A further point worth noting concerns the relationship between project team members and functional home bases. Although dedicated project teams were also generally seen as desirable, matrix organisations were much more common – particularly within client organisations (in cases B, D, E, F, G and I). However, these types of structure did pose some problems for project teams, especially where functional department goals, perspectives and control over needed resources predominated. Particular internal difficulties in achieving the right ‘balance of influence’ were reported on cases where a range of different design groups were involved (cases B, D and E).

For the individuals concerned, there could be problems experienced due to ambiguities and conflicts in reporting relationships and the difficulties of managing diverse and sizeable workloads (especially where staff reductions had occurred, perhaps connected with outsourcing). For the organisations concerned, the resulting fragmentation amongst and within project teams could militate against any long term learning associated with the transmission of ‘encultured’ knowledge through processes such as induction, socialisation, mentoring and the like.

**TRAINING, TEAM MEMBER SELECTION AND PROJECT TEAM-BUILDING**

Across the cases, involvement in partnering relationships and other forms of collaborative working was not linked to particular training patterns or schedules – other than the ‘on-the-job training’ associated with formal team-building sessions. In other words, the training that staff received tended to involve developing particular skills needed on all types of contract, rather than being systematically structured around partnering aims and methods.
Interestingly, team selection and formal teambuilding processes tended to reinforce a short-term orientation to partnering as a whole. With regard to team selection, it was clear from the cases that attitudes were an important factor: people were selected who tended to conform to the requirements for collaborative working and who were ‘good team players’. In other words, their social acceptability was as important (if not more so) than their technical suitability. Where team-building failed fully to convert those not considered to have the ‘right attitudes’ (as happened on cases A, B, D and F), it was then used instead as a filter mechanism to select out staff with ‘the wrong attitude’. In other words, inter-personal compatibility was obviously seen as important, but the mechanism used to achieve this was via selection and teambuilding, rather than training and development.

Project teambuilding was common across the cases and obviously played an important part in socialising members of the team and inculcating appropriate norms and values. In most cases, the process was quite formal and intense, with team-building workshops being used on all cases and most relying on external facilitators (except A, C and I). However, views on formal teambuilding ranged from enthusiasm to scepticism. On the positive side, there was considerable evidence that teambuilding did help groups through formative early stages, promoting group identity and cohesion (D), encouraging feelings of ownership in the project (B) and helping avoid ‘steep learning curves’ (B). On the other hand, many respondents were quite sceptical. Partly this was because of the fact that key actors and organisations were often not included. Often, however, it was due to the perception that teambuilding was only a starting point and no substitute for the experience of actually working together (A, B, D and E). Again, what came across from the cases was a predilection for teambuilding (and the implied short-term social engineering), despite its obvious limitations and potential drawbacks.

**STAFF APPRAISAL, DEVELOPMENT AND REWARD**

There also appeared to be only very loose connections between staff appraisal and development procedures and performance on partnering projects. In other words, developing a long term strategy for partnering did not seem to be systematically linked in with related formal staff appraisal and development processes.

It was also made clear by those interviewed that company reward systems for individual performance were not directly connected to the quite sophisticated systems for incentivisation of contracts that were often constructed around partnering projects. In other words, there was, if anything, more of a de-coupling of personal from organisational financial reward systems. In some of the cases, moreover, project managers were adamant about the need to avoid financial details of partnering agreements reaching down to lower organisational levels – in the event that it might lead to claims for extra bonuses or benefits. The net effect was that project financial incentivisation, while it may have operated at the level of the organisation, was certainly not extended to the level of the individual.

**Project team roles and organisation**

With regard to motivational aspects related to the design of work itself and of people’s jobs, the results were perhaps somewhat more encouraging. There was a very strong emphasis throughout the cases on decentralisation of project decision-making, with the intention of encouraging the resolution of conflicts and disputes at the lowest possible levels and, to a certain extent, allowing project teams to be ‘self-governing’
or ‘self-policing’ (C, D, F). Considerable steps had also been taken to reduce role duplication and an emphasis was placed upon flexibility in roles at site level (e.g. D). Similarly, on the partnering/alliancing projects in particular, dealings were often considered much less formalised than many of the participants had experienced before and there was a strong emphasis on direct, personal contact (e.g. C, D). Where joint project offices were used to co-locate teams (cases B, E, F and H), the effects were universally regarded as positive, due to direct effects on improving communications and indirect effects in reinforcing collaborative behaviour.

Taken together, one might therefore expect these features to have important positive motivational implications for members of staff, since they suggest a degree of job enrichment. Certainly, very positive views were expressed overall about the quality and openness of relationships and communications between clients, contractors and designers. However, there were nevertheless some important reservations expressed, which centred round the persistence of traditional practices and attitudes.

First, there was still considered to be a good deal of formal correspondence and paperwork to get through (especially in the joint venture case). Second, there were often problems caused by the lack of clear demarcations of roles, responsibilities and authority, especially in the early project stages (A, D). Third, problems could arise as project managers reverted to very traditional command and control structures (B) or regressed to traditional management styles (A, E). Finally, it was noted that site organisation and management could still be quite traditional, with site staff and subcontractors seeing little practical change (C, D). Consequently, the overall picture was by no means an unambiguously positive one.

CONCLUDING DISCUSSION

Due to space limitations, the above discussion has only managed to give a flavour of some of the issues and problems associated with the management of human resources with respect to partnering and related forms of collaborative contracting. However, despite the brevity of the review, it has hopefully presented enough to illustrate some of the problems that companies still face in learning to co-operate in the long run.

What was clear from the cases was the absence of very clear, formal and systematic connections between the requirements of partnering and the range of personnel practices used in support of project staff. Lack of availability was still the major factor determining project staffing decisions and pragmatism was the hallmark of selection and secondment processes. Although the immersion of staff in project teams could lead to intense socialisation via teambuilding, it was still the case that such processes were essentially short term, as secondments would come to an end and project teams be disbanded and reformed. Further, staff reward, appraisal and development processes were at best only loosely connected with partnering objectives. These findings are certainly not out of line with findings for the industry as a whole (Druker et al, 1996). However, they do suggest that HRM in any form, let alone the ‘softer’ form implied in many accounts of partnering, is at present hard to find – even in otherwise exemplary cases such as those studied here.

The implications for the long-term diffusion of knowledge about partnering are important. It was clear from the research that people and relationships were considered to be the heart of collaboration. However, the approach to human resource management and development to support partnering initiatives was characteristically informal, pragmatic and short term (as well as often internally inconsistent).
Knowledge of partnering tended to rely upon the skills and abilities of particular members of staff and depended on how well particular teams ‘gelled’ in order to perform. Appropriate ‘know-how’ had not yet been codified or ‘embedded’ (nonaka, 1994; Blackler, 1995) in systematic recruitment, training and development practices. Consequently, organisations were left at something of a disadvantage if those key individuals or teams were unavailable or should decide to leave. Direct personal contact may certainly be a useful way of helping make knowledge ‘encultured’ (through socialisation effects). However, it is still very inefficient and haphazard as an approach to knowledge management, since it depends upon the particular social relations involved and the willingness of individuals to impart their knowledge. The general implication here is of course that relying upon such underdeveloped approaches to the management of human resources is likely to inhibit organisational learning and thus the development of long-term partnering strategies.

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