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The emergence of partnering in construction practice: an activity theory perspective

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Over the last decades, interest has increased enormously in collaborative arrangements subsumed under the term partnering. Recent critics have stated that prescriptive approaches dominate the discussion on partnering in construction. There is a lack of multiple perspectives on the partnering phenomenon including its economic, social, organizational and institutional contexts. Taking this criticism as a starting point, the collaborative practice in a road maintenance contract is investigated from an activity theory perspective. The research findings show that partnering is transient and transformative in nature and that its emergence depends on the individual, organizational and activity-related circumstances of social interaction. The need for a collaborative relationship particularly contradicts and challenges the behaviour and working style that individuals had internalized and been used to. Hence, partnering development is not only a matter of learning new knowledge and adjusting existing working processes. It also requires discarding old routines and behaviour and overcoming vicious circles of reinforcing perceptions.

Keywords: Activity theory, ethnographic case study, partnering.

Introduction

In the 1990s, a number of industry- and government-sponsored reports sharply criticized the construction industry for its insufficient project performance, lack of integration, adversarial nature of its inter-organizational relationships and its pronounced blame culture (e.g. Construction Industry Institute, 1991; Latham, 1994; Egan, 1998). These reports have triggered the search for more collaborative forms of inter-organizational arrangements in construction and partnering has emerged as a general concept embracing a variety of such cooperative working relationships between construction parties. The very general principle of partnering is stated to be the commitment of organizations to achieve common (project) objectives on the basis of trust and the understanding of each other's values and expectations (Construction Industry Institute, 1991). Since then, the notion of partnering has found its way into construction practice throughout the world. There is also a growing body of research trying to understand the partnering phenomenon and provide guidance on the introduction of partnering arrangements in construction.

Driven by the enthusiasm of the early years and anecdotal success stories with their promising performance improvements, much research has focused on revealing the benefits and values of partnering (e.g. Larson, 1995; Chan *et al.*, 2004) and identifying the factors contributing to the success of partnering (e.g. Black *et al.*, 2000; Cheng and Li, 2004). However, even after two decades of research, partnering still appears to be an elusive concept without clearly attributable effects on project performance (Naoum, 2003; Nyström, 2008) and problems of implementing it in construction practice (Ng *et al.*, 2002; Chan *et al.*, 2003). It still remains unclear how partnering can arise in an industry that has shown professional and organizational fragmentation and is unfamiliar with co-configured, collaborative ways of working. It is argued that the difficulties in grasping and understanding partnering in construction mainly rest upon the attempt to formally operationalize the general partnering principle, which obstructs the underlying mechanisms and local circumstances

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involved in the establishment of cooperative relationships (Bresnen and Marshall, 2002). Instead of reducing the partnering phenomenon to a few generic and abstract principles and success factors, it is suggested instead that it may be more appropriate to approach partnering as a locally emergent and socially constructed practice (Bresnen, 2009). In this sense, partnering is considered as highly contextual and transient in nature. It continuously manifests itself in various combinations of economic, social, organizational and institutional characteristics that shape interaction between construction parties. Such a view redirects research on partnering in construction from a formal and generalized conceptualization of the approach to the study of the informal and contextual constitution of collaborative working relationships. This paper intends to contribute to this new orientation.

Taking the contextual embeddedness of partnering as a starting point, the aim of this paper is twofold. First, it seeks to explore the emergence of partnering in construction practice and focuses on the dynamic nature of the contextual aspects of this practice through which collaborative modes of working are constituted and re-constituted over time. Second, it seeks to work towards a more profound theoretical basis for the partnering phenomenon in construction and to move away from the prescriptive tendency of previous research. To pursue both aims, this paper adopts an activity theory perspective on partnering. Activity theory has its origin in Russian psychology (Leont'ev, 1978; Vygotsky, 1978) and although it has existed for more than 70 years, it only recently has been more broadly applied in the fields of education (e.g. Wells, 2002; Barab *et al.*, 2004), human–computer interaction (e.g. Nardi, 1996; Kaptelinin and Nardi, 2009) and organizational learning (e.g. Virkkunen and Kuutti, 2000; Engeström and Kerosuo, 2007). The increased interest in activity theory stems from its insistence that any action of an individual or group is embedded in, and results from, a socially constructed and historically grown context of collective practice. In addition, any action contributes to the continuous re-shaping of this context by becoming embodied in artefacts mediating the interaction of human beings with their environment (Kaptelinin *et al.*, 1995). Taking this perspective of human practices being contextually dependent, the paper seeks to analyse partnering as a characteristic of an activity system that is rooted in the cultural and historical background of a particular client and contractor interaction. It furthermore sets out to show how the emergence and development of a collaborative working relationship between these two parties is shaped by the circumstances of their interaction.

The conceptual arguments are empirically underpinned by drawing upon an eight-month ethnographic case study on the implementation of an integrated, performance-based contract for the maintenance of a road network at the Dutch Highways and Waterways Agency. This new type of contract was introduced with the ambition to establish a partnering relationship between the client and the contractor. The participatory research approach allowed the monitoring of the developmental transformations of the relationship and the exploration of the dependency of this change process on the context of interaction between the parties.

In the next section, activity theory is briefly introduced, followed by an outline of the empirical research design. The paper continues with the case study results. It then discusses the findings with regard to the contextual nature of partnering in construction and finishes with some concluding remarks.

Activity theory

If partnering is best understood as a contextually embedded and socially constructed practice which may be transposed onto historically and institutionally grown ways of working, then practice-based theories offer perhaps the best hope of generating insight into how partnering is constituted and how it may change and develop over time (Bresnen, 2009). Recent work has also suggested that material objects or artefacts may be important in helping constitute partnering through bridging boundaries between different groups' perceptions of collaborative practice (Bresnen, 2010). Consequently, a theoretical perspective is needed that is able to capture the social and material complexities of any attempted transformation to collaborative working relationships in construction. One such perspective is that of activity theory.

Activity theory dates back to the 1920s and 1930s when the Soviet psychologist Lev Vygotsky introduced the concept of mediation in psychology, which suggests that human beings do not directly interact with their environment but that their interactions are mediated by artefacts. Alexey Leont'ev extended the ideas of Vygotsky to a theoretical framework of human activity that conceptualized activities as hierarchically structured systems centred upon a particular object of activity. Activities are realized through the actions of individual subjects on that particular object which, in turn, represents the reality for the individual and the conscious goal of their actions (Engeström and Kerosuo, 2007). This reality and consequently the object itself include not only 'the physical, chemical, biological, etc. properties of things' (Kaptelinin *et al.*, 1995) but also their socially and culturally defined properties. It is the object that differentiates one activity system from another and which is its essential defining

characteristic. The interaction of individual subjects with their object reality is mediated by artefacts. Such artefacts may include physical tools used to apply to the object (e.g. construction technology) as well as more socio-psychological constructs (e.g. inter-organizational agreements) (Kaptelinin *et al.*, 1995). Artefacts play an important part in accumulating and transferring social knowledge, since they embody in their structural and functional characteristics the knowledge and efforts of others who have attempted to deal with similar situations in the past. In this sense, they embody the particular historical development of the activity system. A standard form of contract, for example, represents the cumulative knowledge associated with established modes of contracting and also mediates between the actions of parties to the contract and the object of their actions (forming a collaborative contractual relationship). It does so by shaping expectations and actions and also delimiting possibilities for future action.

Due to their mediating nature, activities can be understood as socio-cultural interpretations of individuals who place meaning onto the object of activity. These interpretations are constructed through continuous involvement by individuals in social practice and are imposed by individuals in particular instances of that practice (Blackler *et al.*, 2000). Activities incorporate the specific goals and motives of individuals set within a historically formed context of human practice. They are constituted through the social and cultural characteristics of this practice and at the same time constantly serve to re-shape that context. So, for example, contracting practice as an activity system is influenced by established ways of working but, at the same time, may be subject to change through the interpretations and actions of individuals and groups and how these are mediated by the artefacts involved. Again, with reference to the standard form of contract, it may either hinder or enable collaborative working depending upon how it relates to the interpretations and actions of the parties concerned.

Importantly, activity theory attempts to overcome the dualism that confounds most attempts to try to explain individual behaviour in its social context. It does so neither by setting aside individuals and their actions from their context (thus over-emphasizing individual agency), nor by treating the context as somehow independent of individual action (thus over-emphasizing structural determinism). This also means that individual actions are only really meaningful when understood in their social context as part of a collaborative effort (Leont'ev, 1978). The goals and motives of individual actions are combined at the level of collective activity. Individuals are members of groups that share sets of social meanings established through group members' interaction over time and captured in common experiences, tools and procedures. The way that group members interact is guided by specific and often internalized rules and is based on a particular distribution of labour and responsibility among group members (Engeström, 1987). The full activity system framework that relates individual and social action to objects in the context of the tools/artefacts, social rules and division of labour in which they are set is depicted in Figure 1.

Activity systems are therefore not simply static representations of a particular activity but are dynamic systems that are subject to change. Due to the functioning of activities within a larger social context, different individual interpretations about the nature of these activities are inevitable (Blackler *et al.*, 2000). Multiple viewpoints, traditions and interests are sources of contradictions within and between activities, which act as dynamic forces of change and create opportunities for further development, becoming manifest in the performance problems of particular activities (Virkkunen and Kutti, 2000). Learning occurs when solutions are sought to contradictions and qualitatively more advanced forms of activities emerge as a result. Engeström (1987) distinguishes four levels of contradictions that have an important impact upon processes of learning and change. Primary contradictions arise within the components of an activity (e.g. within the subject or the artefact itself). Secondary contradictions emerge between components of an activity (e.g. between the subject and the artefact). Tertiary contradictions occur between an existing activity and a new generation of this activity. Quaternary contradictions arise between an activity and its neighbouring activities.

Activity theory therefore represents a fruitful epistemological framework for gaining deeper insights into the emergence and development of partnering in construction, because it can be used to conceive of partnering

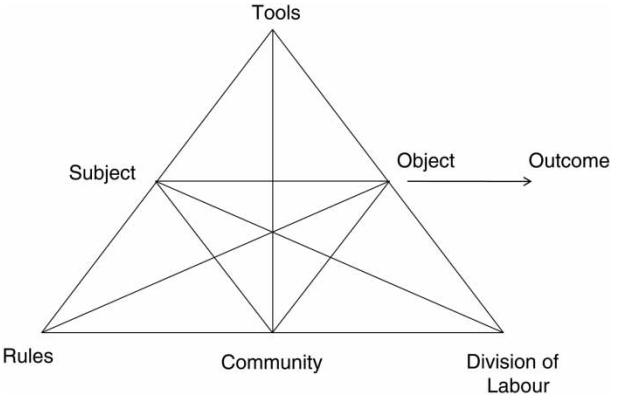

Figure 1 System of human activity (Engeström, 2001)

as the specific constitution of an 'activity' that consists of a set of collective practices that are held together by internalized rules of collaboration. Such an activity system clearly encompasses individual and collaborative actions that are directed towards particular goals (e.g. project objectives). However, importantly, such actions are also culturally situated (e.g. in the organizational/professional background of actors or the capabilities and experiences of the organizations), technologically mediated (e.g. through IT applications, forms of contract available and the like) and historically emergent (e.g. prompted by prior unsatisfactory project performance). Consequently, there is an emphasis here placed on the mediating effects of tools and technologies, the particular social rules, roles and conventions within which people act and interact, as well as on the specific developmental process through which collaborative practices arise.

These effects are not always so systematically explored in other, more mainstream approaches to partnering. They are also not so apparent in other, alternative practice-based perspectives that might instead regard these tools and social structures as more ephemeral (e.g. social constructionism), or which might more radically propose that material artefacts themselves play an active role (e.g. actor–network theory). It is the mediating effects on social practice which activity theory draws us to, the contradictions and tensions associated with them and how they may influence the development and attempted institutionalization of a partnering approach in any one particular case that provide the empirical focus for the rest of this paper.

An ethnographic case study of partnering practice in road maintenance

Research design

An ethnographic case study was used to explore partnering in construction from an activity theory perspective, examining the extent to which collaborative working relationships between construction parties emerged through a contextualized process of sensemaking and learning. The rationale behind choosing an ethnographic approach is the notion of activity as 'a result of certain historical developments under certain conditions and as continuously re-forming and developing process' (Kaptelinin *et al.*, 1995, p. 193). That is, any activity system can only be understood through the analysis of this transformative process. That requires, first of all, longitudinal studies that are able to chart the developmental changes of the activity system under investigation. In addition, intervention sessions are suitable means of uncovering interpretations about the nature of activities and allowing discussion on possible ways to respond to and overcome contradictions within and between activity systems (Engeström, 2004). The latter approach to understanding change has become an integral part of the research methodology applied in activity theory. In this sense, the ethnographic approach applied here included not only passive observation of the partnering process, but also active participation in the construction of a changed partnering practice. The combination of ethnography with a case design is justified by the importance of understanding the particular circumstances of the relationship between construction parties and how they shaped the partnering arrangement. Case studies allow for the investigation of a phenomenon within its real-world context and address the holistic nature of this context (Eisenhardt and Graebner, 2007). Due to the scant knowledge available about the emergence and development of partnering in construction, the case study at hand is used to explore collaborative practices in construction in a specific contextual setting with the aim of contributing towards theory development.

The chosen case is a new form of performance-based contract for road maintenance implemented at Rijkswaterstaat (RWS), the executive arm of the Dutch Ministry of Transport. In 2009, RWS was responsible for managing 5701 km of carriageways and 65 250 km^2 of the main water system in the Netherlands. Since 2004, RWS has been undertaking tremendous efforts to develop into a professional public-oriented network manager by focusing on the needs of the infrastructure users and increasingly engaging the private sector in the design, construction and management of its infrastructure. Driven by national cabinet policies, RWS realigned its procurement strategy and organizational structure in order to increasingly assume the role of a commissioning authority. New forms of contract were introduced with the primary aim of reducing the direct engagement of RWS in designing, building, operating and maintaining infrastructure assets and putting suppliers in charge of integrated service packages. In 2007, RWS introduced a new generation of performance-based contracts for road maintenance as part of this strategic reorientation and explicitly emphasized partnering as an approach for carrying out the contracts. The first of this new generation of performance-based contracts was awarded in Zeeland, 1 of 10 regional areas managed by RWS. The unit of analysis of this research is the working relationship between RWS as client and the contractor in Zeeland.

The ethnographic case study covered a period of eight months starting one year after the tendering of the contract in Zeeland. During this period, 31 observations, 10 interviews and 1 intervention session took place. Observations were carried out during the biweekly meetings of the operational staff of client and contractor and the

meetings of the middle and top management of both organizations every six weeks. The observations aimed at determining at the group-level behavioural aspects of the interaction between RWS and the contractor, uncovering the underlying perceptions and values of both contract parties and identifying the ways problems in daily work were dealt with. The observations were carried out by two researchers who made notes during the meetings and compared their notes and analysis after each meeting. Interviews were used to explore, at the individual level, the expectations and motivation of each team member from the client side and the contractor side and contrast them with the findings from the observations. The interviews lasted between 45 minutes and 1.5 hours. All interviews were tape recorded and transcribed for subsequent analysis. The intervention session addressed specific problems that related to opposing positions taken by team members which became apparent during the regular meetings. In the intervention session, the researchers tried to understand why these problems were difficult to solve by involving team members in a dialogue about their reasons for taking up certain positions towards the problem. The main aim of the session was not to provide a solution for a particular problem but to understand the circumstances that prevented the contract team from dealing with the problem in the first place and to allow the contract team to identify advanced procedures for coping with similar situations in the future. The intervention session was again conducted by two researchers: one who moderated the discussion and one who took notes. Through this combination of observation, interviews and an intervention session, it was possible to analyse the developmental changes in the collaboration of the two parties and to understand individual and collective characteristics of the working relationship in a broader cultural and historical context. The descriptive findings from observations, interviews and intervention sessions were manually coded into major thematic categories and concepts (Strauss and Corbin, 1990). Since the analysis of the data was guided by the conceptual ideas of activity theory, major thematic categories were related to activities and their characteristics, contradictions in the activities, mediating artefacts and collaborative rules, roles and behaviour.

Changes of the contract as mediating tool

Zeeland was the first regional area of RWS to implement the new generation of performance-based contracts for road maintenance. The contract introduced a number of changes in the maintenance regime in Zeeland. As mentioned before, these changes were a response to political pressure, which required greater value with fewer resources. They also reflected the strategic reorientation of RWS towards a greater engagement of the private sector in service provision. The changes were also an answer to recognized deficiencies in the existing maintenance regime such as the lack of incentives for the contractor to invest in innovative ideas, the lack of attention of the contractor to the needs of the road user and adversarial relationships between client and contractor. Put differently, the previous generation of maintenance contracts was perceived to have performed poorly as a tool mediating the actions of, and interactions between, public and private bodies involved in the maintenance of the road network. The contractual changes then were an outcome of a political and organizational debate which highlighted the primary contradictions that existed within the existing maintenance activity and which led to the generation of contracting solutions intended to alter the perceived shortcomings resulting from these contradictions.

A first change introduced was the bundling of maintenance work for 174 km of motorways and trunk roads into one contract, which was let for a period of five years with the possibility of extending it for another three years. In the past, the maintenance of the network was contractually split into packages with short contract durations. Under the new arrangement, one contractor becomes responsible for the execution of the entire maintenance work. In Zeeland, the contract replaced 14 smaller contracts for daily maintenance, small renovations and road services (such as the management of green spaces, road markings, public lighting, fault repair service, handling accidents and settling damage claims). A second change with this new contract generation was the functional description of the work the contractor had to deliver. Instead of stating, for example, when and how many asphalt damages have to be repaired, the work specification only referred to the permitted unevenness and crack width of the asphalt. The contractor was responsible for recognizing and removing possible deviations from these performance criteria, but was simultaneously allowed the freedom to optimize their own work processes. A third change was the greater emphasis on quality, which included the evaluation of the contractor's tender offer not only on price (weighted 40%) but also on quality (weighted 60%). It also became possible for the contractor to suggest quality improvements of the asset system which, if positively approved by RWS, resulted in additional turnover for the contractor. In addition, some larger renovations, such as the renewal of parking areas, were initially included in the contract. A fourth change was a new way of controlling contracts. RWS employees no longer directly supervised the work done by the contractor, they only had to check whether the work was completed correctly. The aim was to reduce the administrative and

supervisory workload. The contractor was given a much more active role, which included having to write a project quality plan and having to demonstrate compliance with what was promised in this plan. RWS, on the other hand, occasionally audited the process and the product delivery of the contractor. Given the shifted responsibilities, the long contract duration and the more indirect control of contracts, partnering was introduced as an essential aspect of putting the contract into practice. It represented the fifth change and was regarded as essential for the success of the contract. The aim of RWS was to supersede the traditional and mostly adversarial separation of roles between principal and agent in road maintenance. On the basis of common goals, mutual trust and openness, the quality of the Zeeland road network was to be increased.

The contract was awarded in May 2007 to Heijmans (HIM), a large Dutch contractor. In order to establish a partnering relationship, the team members of RWS and HIM went on a three-day journey to the UK where they were inspired by the experience of the Highways Agency with partnering set-ups and signed a partnering agreement. The underlying intention was for all team members to collaborate and learn from each other. However, despite the initial partnering statement, the emergence of a collaborative working relationship was dependent on the specific circumstances of two main activities in Zeeland: the maintenance of the network and the improvement of the network. What these two activities revealed about the contextualized nature of partnering is elaborated in the following sections.

The activity of maintaining the network

The basic object of the first activity identified in Zeeland was the maintenance of the highway network in the region. As described above, the maintenance activity underwent some changes in terms of the contractual integration, performance-based description and the indirect control of maintenance work. Although these contractual changes were meant to overcome perceived performance problems in the previous maintenance regime and improve the interaction between client and contractor, they could not prevent team members from both RWS and HIM reverting to established behaviour patterns and developing conflicting interpretations and expectations about maintenance actions. Additional mediating support was therefore needed to help team members from both organizations find appropriate ways of interacting.

Reverting to established behaviour and rules

The implementation of the contractual changes in the maintenance activity evoked additional, secondary contradictions with the historically established behaviour patterns and roles of the team members from RWS and HIM and with their established norms or 'rules' of interaction. The internalized and cultivated way of working of both parties became manifest in the biweekly meetings of the operational staff. The meetings were dominated by RWS team members who were used to being actively involved in coordinating and directing maintenance work. They took the lead in the meetings and constantly tried to prescribe the maintenance work that they expected to be done based on their interpretation of the contractor's project quality plan. For RWS, the project quality plan was a reference document to be used for judging the contractor's work throughout the duration of the contract. For HIM team members, the project quality plan only represented a working document for further detailing and adjustment of the required quality based on the specific asset condition at hand. However, HIM failed to convincingly explain the rationale behind their maintenance planning during the meetings. The extensive prescription and control of their work in the past resulted in a very passive response from HIM team members. This contrasted markedly with the extended responsibility to coordinate all maintenance and provide evidence for compliance with expected network performance that was expected under the new contract.

The induction of interpretation and expectation differences

In addition to the behavioural contradictions above, the new contract mediated the maintenance actions of team members from RWS and HIM by inducing significant differences in the interpretation and expectations about the extent and quality of required maintenance. The discrepancy in interpretations and expectations became apparent when it came to unexpected situations which were not explicitly dealt with in the contract documents. Typical situations were, for example, a clogged drain which could not be easily rinsed and had to be replaced or potholes which constantly reoccurred and required a new road surface. HIM felt that RWS needed to clarify how to deal with these problems as they did not regard them as part of the contract; RWS, on the other hand, expected the contractor to independently and fully manage all maintenance aspects, including these, as part of their project quality plan. As a consequence, team members of both organizations became very inactive and reserved: HIM waited for answers to their posted questions and RWS waited for action by HIM. Not surprisingly, the number of internal and external complaints about the condition of the road network increased. In April 2008, it finally culminated in a conflict situation: RWS team members saw the increase in complaints as

a direct result of a contractor who did not deliver the quality that RWS expected and who was more interested in maximizing his profit than in complying with contractual obligations. HIM team members, on the other hand, insisted they had put more effort into the network than contractually defined, resulting in improved network quality.

It is important to note that interpretations and expectations differed not only between team members from the two organizations but also between team members from the same organization. Operational staff, in particular, were convinced that the other party did not abide by the contractual agreements. That perception was reinforced, on the RWS side, by the trouble they experienced in monitoring the contractor's work from a distance and their strong adherence to written quality statements. On the HIM side, it was reinforced by their shortcomings in creating trustworthy evidence for their work quality. The middle and top management from the Zeeland region and the HIM infrastructure department found it easier to achieve a common understanding of the objectives of the collaboration, and it was this management level that reminded the operational staff of the signed partnering agreement when they were confronted with these conflicts.

The application of mediating support for interaction

In order to resolve the conflict situation, in April 2008, a so-called 'white smoke' meeting was held. The reference to a papal election was meant to indicate the intention of having solutions to the conflict by the end of the meeting. The meeting was successful insofar as it encouraged an atmosphere of openness. For the first time, perceptions and expectations were explicitly articulated by both parties. However, although the meeting ended with some concrete agreements, in the following months as soon as an unexpected situation arose, the conflict flared up again. It became apparent that team members from both organizations were unable to break through the vicious circle of reinforcing perceptions and deep-rooted values and beliefs which undermined the partnering philosophy. In June 2008, an intervention session was conducted which took a conflict-laden issue as the starting point in order to raise awareness of the perceptions of each contract party and the emergence of divergent interpretations. The team members started to think about possible interventions which might help their perceptions to converge. Interventions that were developed and implemented included alternating the chairing of biweekly meetings, providing work places for contractor staff at the RWS office, training RWS team members in applying the new method of controlling the contract and a procedure for the timely reporting and handling of unexpected events. Besides this additional mediating support, the intervention session created an awareness of the importance of being open to the interests and opinions of the other organization and of the need to maintain constructive dialogue. Of course, even after the intervention session some unexpected situations led to contrary positions being taken. But with the above mediating mechanisms and the openness to dialogue that was created, it was possible to deal more effectively with these conflicts in a way that prevented opposing interpretations and mistrust and which generated continuous confirmation of the new ways of working.

The activity of improving the network

The object of the second activity in Zeeland was the improvement of network quality that went beyond regular maintenance and which built on suggestions by the contractor. Compared with the maintenance object, the possibility of generating suggestions for improvement was new to the client's contracting practice. Nevertheless, understanding the improvement action as a project and creating an alignment of interests through that activity system object did mediate the interaction between RWS and HIM in a way that was more familiar to team members from both organizations than that experienced under the changed approach to maintenance activity.

The mediating effect of interest alignment

At the beginning of the contract, most of the RWS team members had the perception that innovativeness was essentially a characteristic of the private sector and that the new performance-based contract would automatically elicit innovative solutions from the contractor. However, after a few months, the RWS team members recognized that HIM's suggested improvements did not have the anticipated innovation potential. Although RWS formulated general aims around sustainability, availability and reliability, HIM had trouble thinking 'out of the box' and generating new ideas for improving the performance of the road assets. Instead of product-related innovations, HIM first of all suggested process-related improvements. From the perspective of RWS, these suggestions did not warrant extra financial resources, since they were seen to emerge from the contractor's own continual improvement processes. It became obvious that the contractor was not used to innovating infrastructure assets and needed time to build up this capability. In addition, at the beginning of the contract the contractor did not have comprehensive knowledge about the peculiarities of the road network in Zeeland. RWS team members, however, had acquired this knowledge over the years, including

the organizational and jurisdictional conditions of adopting the road assets. Based on that knowledge, they started developing their own ideas. Surprisingly, this did not cause any conflicts between client and contractor. Both organizations brought their ideas together, worked on a joint improvement plan and realized most of the improvements in a way with which both organizations were satisfied. A closer look at the circumstances of the improvement activity revealed that the interests and motives of both parties were still different, but were nevertheless addressed by the activity. For RWS team members, the improvements helped to achieve a qualitatively improved network that met the expectations of road users. For HIM team members, the improvements represented additional work which promised financial and reputational gains.

The mediating effect of project characteristics

The improvement actions had the character of small projects with defined boundaries and delimited scope that, in turn, facilitated a common understanding of the goals to be achieved. Because of these project features, the improvement activity was more consistent with previous ways of working in both organizations and could be more easily reconciled into a collectively shared set of principles and tools to cope with project-oriented questions. In addition, time pressure to complete the work was created by the RWS main organization, which restricted the budget available for improvement work. However, that only acted as an additional catalyst for interaction between RWS and HIM, since team members were forced to develop and implement improvement ideas. Compared with the maintenance activity, a collaborative way of working emerged much more quickly under the improvement activity due to the mediating effect of both interest alignment and its distinct project characteristics.

Analysis and discussion

Partnering is often conceptualized as a relationship between construction parties formally built on commitment, trust and common understanding, which can be achieved by putting the right procurement and contract mechanisms in place (Eriksson, 2010). From an activity theory perspective, such a conceptualization of partnering can be equated with an activity system that involves a close alignment between the actions of client and contractor. What this suggests is that construction parties engage in a relationship with a commonly shared interpretation of the motives and goals of their interaction and with a similar understanding of the purpose of the applied concepts and tools to transform their intentions. They rely on shared rules in their actions and an agreed division of responsibilities. The case study results presented above reveal, however, that such a view represents a somewhat oversimplified and static approach to the partnering phenomenon in construction, which neglects the highly contextualized emergence of partnering and obscures the continuous re-constitution of collaborative relationships. In particular, the case results emphasize the extent to which the development of a partnering relationship is dependent upon the particular juxtaposition of interests and forces acting within the activity system that, through mediating effects upon the actions of the parties involved, influences the extent to which collaborative working emerges or does not emerge and the extent to which it triggers and reinforces appropriate behaviour patterns (or, instead, a regression to established ways of working). For example, it was the mediating effect of treating the improvement of the network as a project that enabled the parties to make sense of this new object of their working practice. Other mediating effects (the strength of pre-existing ways of working and problems that reinforced preconceptions of the other's behaviour) had other, less positive, consequences when it came to the maintenance activity. Based on the case study results, the following sections elaborate more on the historically and locally embedded constitution of partnering as a dynamic characteristic of activity systems in construction.

Partnering development in a historical context

The case study suggests that for partnering to emerge in the first instance requires fundamental contradictions within and between the elements of existing activity systems that, through their manifested effects on performance, prompts the client to seek out and adopt an alternative way of contracting. For example, with the new generation of performance-based contracts, RWS responded to politically driven initiatives and recognized deficiencies in maintenance activities in the past. The new contracting practice involved specific changes that were expected to adequately address the perceived contradictions in previous maintenance regimes. The integration of maintenance work, the long-term responsibility of one contractor for the execution of the work, the indirect control of the contract and the possibilities opened up for improvement increased the complexity of the contracting practice in Zeeland and the mutual dependency of the client and the contractor. As a consequence, unexpected incidents or problems more often required cooperative solutions. Although partnering was introduced as an independent contract element, the development of cooperative relationships became inseparable from the specific changes to contracting practice

in Zeeland. In other words and in line with activity theory, the emergence of collaborative working relationships embodied the historical development of road maintenance activities in Zeeland (cf. Bishop *et al.*, 2009).

Partnering development and the change of mediating artefacts

The case study also supports the activity theory argument that changes of a mediating artefact can disturb the way interacting individuals are used to ascribing meaning to the object of their actions (Kaptelinin *et al.*, 1995). As a result of the contractual changes in Zeeland for team members from both organizations, the established way of working and the knowledge they had accumulated on how to maintain and improve road networks became partly obsolete and it required the joint effort of both organizations to develop new knowledge while working under the changed maintenance regime. At RWS, for a long time, there was a perception that contractors were likely to be opportunistic. The RWS operational staff, in particular, entered the relationship with very high levels of mistrust, notwithstanding the initial partnering statement. At HIM, there was a perception that the client was instructing the contractor, and the HIM team members therefore responded by acting very passively and by guarding information. The new way of controlling the contract intensified these initial perceptions. RWS team members were accustomed to directly observing and controlling *in situ* what the contractor was doing. Consequently, their initial mistrust was reinforced by the passive role they were expected to play under the new maintenance regime. These staff members believed that they were losing control of the infrastructure quality. They experienced more uncertainty about the work the contractor delivered. Their beliefs were not only a reflection of their mistrust of the contractor, but also a consequence of their capabilities and competencies no longer being suitable for the new way of ensuring the requested work was delivered. The changed way of controlling contracts required thinking through processes at a high level of abstraction, rather than detailed knowledge of technical solutions. In addition, other communication and negotiation skills needed to be developed. As a consequence, the development of partnering was dependent on the mediating effects of changed contractual elements on the actions of and interaction between team members and the resulting adjustments in the historically established rules, responsibilities, attitudes and competencies that were needed.

Partnering development in local circumstances

The case study also shows that the construction and maintenance of a partnering relationship does not simply involve building a harmonious team relationship around an agreed partnering concept (accepting, of course, that this in itself can be a difficult process). Instead, it is likely to involve an approach that is highly contingent upon the particular circumstances of the parties and the experiences and practices that they adopt and upon how these circumstances, experiences and practices dynamically play out through being mediated by several contractual tools, organizational interventions and concepts. In the case, investigated partnering development was not a linear or predictable process. Whether a collective way of working could be developed was dependent on a number of contextual aspects such as the discrepancy of interpretations, individual levels of mistrust, organizational constraints (e.g. available funds), managerial support and the application of appropriate intervention measures. The process of developing meaning, forming perceptions and creating knowledge was rooted in the local circumstances of the maintenance and improvement activities in Zeeland. Also important was the interrelationship between them. The two activities were interrelated not only in the sense of referring to the same road network, but also through the effect that behavioural patterns in one activity mediated the sense-making that went on in the other activity. For example, RWS operational staff took a more proactive stance towards the contractor during the improvement of the network as a result of their mistrust of the contractor's intentions during the maintenance activity and their perception that the contractor was only cooperative when extra financial advantages were expected. For most of the team members of RWS, moving beyond maintenance activity and improving the network were seen as a bonus as they saw the main focus of the contract practice as being on maintenance. HIM team members regarded maintenance as a standard work which did not offer much opportunity for efficiency gains. For them, the attractiveness of the new contract lay in the opportunity for suggesting improvements. It was this permanent tension within and between the two activities which made partnering a fragile and volatile construct.

The transformative and transient nature of partnering

As suggested elsewhere (Bresnen, 2010), collaboration between RWS and HIM was a social accomplishment that emerged through the interaction of the team members from both organizations. Although initially promoted through the partnering agreement, a collaborative relationship between the two parties did not automatically arise at the beginning of the contract. It was constituted through the specific attempts and actions of the team members to address the

contradictions, conflicts and disturbances that were continuously induced in the interaction of the two parties towards the maintenance and improvement of the road network. During this daily interaction between RWS and HIM, perceptions about intentions and attitudes of the other party were formed and transformed. The inherent tensions in meanings and interpretations about the extent and quality of maintenance and the improvement of the road assets were disclosed and the effects of any intervention to mitigate these tensions became apparent. In this sense, the case study supports the argument of Bresnen and Marshall (2002) that partnering is a dynamic and iterative process characterized by sense-making, perception-forming and learning, rather than being a prescriptive measure of procuring construction projects.

The case study results also suggest that the extent of sense-making and learning can differ between individuals, organizations and activities. Team members of the contracting practice in Zeeland, and particularly operational staff and management staff, had a somewhat different view of the object of the activity, possessed different experiences and qualifications, carried out different actions and bore different responsibilities. For the operational staff, the 'cognitive distance' (Noteboom *et al.*, 2007) introduced with the changes in maintenance activity was greater than for the management staff. It required additional interventions to break out of the conscious or subconscious recall of internalized behaviour and routines. The distance was smaller when it came to improvement activity. Although newly applied to contracting practice, the circumstances of the improvement activity were more familiar to the operational staff of RWS. The limited scope and the output-oriented description of the work as well as the external constraints and active involvement of RWS staff meant that the improvement activity was closer to the way of working under the traditional maintenance regime. However, HIM staff members did have more trouble learning how to enhance product effectiveness. Based on the case study results, it can be argued that the sense-making and learning process can be different for team members from different organizations in different situations. Whether the collaboration between RWS and HIM was positively or negatively evaluated was strongly determined by the person who was asked, the organization the person belonged to and the specific activity that was referred to. Consequently, there are likely to be inevitable differences in the manifestation of partnering as characteristic of activity systems in construction.

Partnering development and unlearning

Although the disturbances and contradictions in existing activity systems can be regarded as triggers for learning and behavioural change, the case study suggests that these systems to some extent blocked the transformative process of sense-making by activating deep-seated views and perceptions which are reinforced in vicious circles. Team members of both organizations became trapped in their established values and beliefs and relied on existing habits and routines. The initial journey to the UK and the signing of a partnering agreement was not successful in removing old behavioural patterns. It only emphasized in a somewhat rhetorical fashion the willingness of the two parties to work collaboratively. Unexpected occurrences immediately resurrected internalized practices and behaviour and were used to underpin already existing perceptions. Such an observation substantiates the difficulties often encountered in converting formal partnering agreements into a changed way of working (Bresnen and Marshall, 2000). However, it goes further by pointing out the underlying mechanisms of processes of reinforcement and active sense-making that help explain the difficulties encountered in breaking out of existing routines. Here, the argument is put forward that establishing a partnering relationship in construction is not only a matter of the joint knowledge creation on ways of working. It is also a matter of discarding old routines, attitudes and habits. Unlearning even becomes a precondition for learning and consequently for the emergence of partnering.

Although the concept of unlearning is given limited attention in scholarly literature compared to the opposed concept of learning (Tsang and Zahra, 2008), since the seminal work of Hedberg (1981) it has been acknowledged that previous knowledge potentially impacts upon learning processes and therefore unlearning is a necessary precondition for the inclusion of new information and behaviour (Becker, 2008). The results of the case study are in line with previous studies, which emphasize the impact of an individual's frame of reference upon the propensity to change (e.g. Oreg, 2003; Becker, 2008). However, the case study extends these findings that mainly relate to the individual level. It shows that partnering development covers different aspects of activities and unlearning relates to the interplay of the individual and the intra-organizational and inter-organizational context. In particular, the 'rules' expected to be adhered to in a partnering relationship between client and contractor team members can contradict individual behaviour patterns and internalized beliefs and the often adversarial nature of construction teams. When interacting in teams, individuals have to become aware that certain behavioural patterns are no longer useful and beneficial for the circumstances at hand. In other words, unlearning—like learning—is an interactive process of team members from different organizations working together to change their interpretations of the behavioural motives of each other and

adjusting their own practices to suit. However, sense-making through interaction makes unlearning a vulnerable process, since, as the case study revealed, perceptions of others' behaviour often lead to the same routines being used as in the past. Routines are not completely erased but are still able to be resurrected and enacted (Klein, 1989). From an activity theory perspective, such internal contradictions ensure that the process of shifting to a new stabilized way of working is inevitably a moving goal and a fragile accomplishment.

Conclusion

Partnering is a concept that has been widely promoted as a way of overcoming the hostile relationships in construction practices. However, deeper insights into the evolution of partnering relationships are rare. Adopting an activity theory perspective, this paper has approached partnering as a contextually embedded practice, which is constituted through the social interaction of individuals. Based on an ethnographic case study, it has shown that partnering is a fluid concept which emerges from the specific circumstances of activities. These circumstances include individual, organizational and activity-related characteristics, and it is the combination of these situational characteristics which accounts for the considerable variation in manifestations of collaboration found in construction practice (Nyström, 2008). Historically established and cultivated routines and habits prevent team members from resolving contradictions, disturbances and conflicts that often become manifest through unexpected occurrences or other changes in activities. Only through interaction itself are teams able to recognize the tensions in their working systems. However, reflection appears to be critical for raising awareness of the (in)appropriateness of behavioural patterns and the sources of divergent perceptions and meanings. If partnering is not to be merely rhetorical lip service, but instead a serious willingness to cooperate, moments of reflection can help reveal internalized behaviour and help parties rethink the way practices are carried out. Moreover, specific interventions can be identified supporting individuals in bridging the cognitive gap that a changed way of working may bring about and avoiding any regression to previous habits and routines.

Since a single case study has limitations in terms of generalizing the results, future research should investigate the emergence of partnering in other construction practices using an activity theory perspective. In addition, it should take a closer look at the process of unlearning in the development of partnering by investigating its relationship with individual characteristics and organizational context, the interplay with learning and sense-making processes and the mechanisms through which unlearning is mediated. Given this fluidity in the concept of partnering, it would also be interesting to investigate further how and to what extent it can be institutionalized (cf. Bresnen and Marshall, 2010) and which mediating structures might help sustain or inhibit the development of partnering in the long run.

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