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Community engagement in project organization research: the contextualization of the research process

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In recent years a growing number of academics have proposed new ways of engaging with practitioners and other individuals and groups outside the academic world. The main aim of the movement towards more engaged research is to foster and establish forms of knowledge production in which different professional communities interact and co-operate. Community-engaged research seeks to overcome the separation of the knower from what is to be known and, by doing so, to produce knowledge that advances both science and practice. The paper reports on the experiences and insights gained during the adoption of community-engaged research at the Dutch Highways and Waterways Agency. It develops the argument that any form of community-engaged research in engineering project organization research is a dialectal and reciprocal learning process of academics and practitioners embedded in the changing context of practice. Research activities and engagement phases interactively evolve and through this interaction the research process becomes contextually dependent.

Keywords: Community-engaged research, industry-academic collaboration, project organization.

Introduction

Typically, research in the area of engineering project organizations (EPOs) resides at the intersections of engineering, social and management sciences and strives for new insights into the behaviour of project-based organizations at these disciplinary intersections. Such an ambition requires 'new applications of research methods, inter-disciplinary academic collaborations and the removal of long-held academic and professional silos' (Chinowsky, 2011, p. 4). Particularly, the latter appears to still prevail in the field of organization and management studies, as the long and sometimes heated debate about rigor and relevance indicates (see, e.g. Torch, 2007; Fincham and Clark, 2009; MacIntosh et al., 2012). Academics and practitioners alike have the perception of belonging to two diametrical communities with their own and disparate languages, discourses, methods and institutional norms (Astley and Zammuto, 1992; Bartunek, 2007; Hodgkinson and Rousseau, 2009). The research community is primarily interested in the production of contextually independent and justified knowledge, while the practice community's main concern is the application of knowledge for the immediate solution of context-specific problems (Jarzabkowski et al., 2010). With the strong desire to generalize across the particular case, academics often implicitly assert the existence of value-neutral, deterministic and objective problems, which can be detached from the contextual settings of project organizations and which obey general and immutable patterns of causality (Seymour and Rooke, 1995). That is associated with the risk of not only simplifying social reality by playing down the complex and dynamic nature of real-world problems in project-based organizations, but also favouring distance between academic and practitioner (Reason, 2001). Driven by the search for justified approaches and methods to obtain scientifically valid results, practicality and legitimacy of research become less evident, contributing to the further manifestation of two seemingly divided knowledge domains (Dainty, 2008).

In recent years, more and more voices have been heard that advocate a redefinition of the relationship between the academic researcher and those being researched in the organization and management-related sciences

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(e.g. Van de Ven, 2007; Amabile *et al.*, 2001; Martin, 2010; Marcos and Denyer, 2012). They call for research approaches that address the complexity and contextual embeddedness of socio-technical problems by locating research activities in the communities that both support and are to benefit from the research (Bresnen, 2009; Green *et al.*, 2010; Pettigrew, 2011). This contextualization of research (George, 2014) seems particularly vital for EPOs with their technical, social, managerial and governmental influences on projects. The EPO researcher should collaboratively engage with members of project organization communities (e.g. users, clients and sponsors) to understand the nature of problems and to generate new perspectives and insights to specific problem categories (Van de Ven, 2007; Chinowsky, 2011). What then can be called community-engaged research is a process of systematic inquiry which is built on collaborative actions of practitioners and academics. It is a generic concept of setting up research (rather than a distinct methodological approach) which seeks to overcome the separation of the knower from what is to be known (Minkler, 2005) and, by doing so, to produce knowledge that is able to advance both science and practice of project-based organizations. It aims at relocating dispersed activities of discovery and understanding, connection and integration, application and change from institutionally isolated disciplines to arenas of participatory actions (Boyer, 1990). It marks the transition from 'research on practice' to 'research in practice' (Friedman, 2006, p. 132).

The incorporation of reciprocal engagement into EPO research exposes academics and practitioners to new sources of knowledge and provides the fertile grounds for the production of 'actionable knowledge' (Argyris, 1993) that is knowledge 'implementable by the users whom it is intended to engage, such as academics, business practitioners and policy-makers' (Antonacopoulou, 2009, p. 422). Actionable knowledge connects scientific knowledge which is non-contextual and universal with practical knowledge which is contextual and instrumental (Cairns, 2008; Sexton and Lu, 2009). Since actionable knowledge involves an understanding of the motives and purposes of decision-making in the particular practice context to inform action, it needs to draw on the perspectives and skills of all actors that can judge its utility, that is, practitioners and academics (Green and Schweber, 2008). However, establishing collaborative relationships between academics and practitioners is quite challenging (Coghlan and Shani, 2008; Chinowksy, 2011; Stokes and Dainty, 2011). A strong perception of academia and practice as separate and distinct cultures – one focussing on rigor and the other focussing on relevance – entails the risk of establishing and reinforcing an asymmetrical relationship between the two worlds (Aram and

Salipante, 2003; Moisander and Stenfors, 2009; Beyer, 2011). It thus seems essential to allow for permeation of academia and practice by creating an environment of mutual learning and discourse (Marcos and Denyer, 2012).

Although project organization research with community-engaged elements has been already adopted by academics (e.g. Fernie *et al.*, 2003; Sexton and Barrett, 2003; Hartmann *et al.*, 2009), there is little understanding of the opportunities and challenges that are associated with the creation of such a learning environment (Amabile *et al.*, 2001; Marcos and Denyer, 2012). To our knowledge, there have not been any detailed accounts on the interaction of academics and practitioners in investigating project organization practices. The aim of this paper is to shed more light on the establishment and emergence of collaborative relationships between academics and practitioners in the knowledge production process of EPO research. It focuses on different engagement phases and the extent to which they are able to constitute an environment in which academics and practitioners recognize themselves as partners in producing actionable knowledge. By adopting a sociocultural theory perspective and drawing on the extant organization and management literature, our main argument is that any form of community engagement in EPO research is a dialectal and reciprocal learning process of academics and practitioners embedded in the changing context of practice. If 'co-production implies an unfolding and iterative engagement with empirical contexts' (Green *et al.* 2010, p. 119), the research process as arena for co-production is necessarily embedded in and interrelated with the empirical context. The argument is supported by the insights and experiences the authors gained in a longitudinal research project for the Dutch Highways and Waterways Agency. The four-year research project was part of the agency's programme for infrastructure management (PIM) that aimed at innovating the agency's contracting and planning practice for road and waterway maintenance and included the scientific monitoring of the innovation process. Since at the outset of the monitoring academics and practitioners formulated the ambition to collaboratively work on emergent problems, the research project is a rich source for the contextualized evolvement of community-engaged research in EPOs. We intend to show that reciprocal learning and collaborative relationship building are interrelated. Academics and practitioners produce knowledge through interaction but at the same time create meaning attached to this process. We also intend to show that the interaction can gradually intensify from lower to higher levels of engagement and that the research approach plays a mediating role in this transition process. In this sense, the paper aims at contributing

to the constitution of EPO research as a line of inter-disciplinary and engaged inquiry.

The paper is structured as follows: In the next section, we briefly introduce community-engaged research and its sociocultural characteristics. The paper then offers insights into the activities employed in the longitudinal research project and the evolution of the academics' relationship with the practitioners. We then discuss the contextual nature of community engagement in the research and draw some general conclusions for community-engaged research in EPOs.

Community-engaged research

The realization that the knowledge creation process has been strongly fragmented is shared by many academic disciplines, ranging from education and health care (e.g. Strand *et al.*, 2003; Minkler and Wallerstein, 2008) to business and public management (e.g. Martin, 2010, Markides, 2011) and information technology (e.g. Mathiassen and Nielsen, 2008; Medaglia, 2012). The reasons for this fragmentation are seen in the hierarchical order of knowledge domains privileging basic science above applied research (Boyer, 1990) and in the recognition that science and practice produce two distinct forms of knowledge (Van de Ven and Johnson, 2006) which lead to self-referential and self-reinforcing activities within these domains (Senge and Scharmer, 2006). In recent years the number of academics has increased who propose new ways of engaging with practitioners and other individuals and groups outside the academic world. Emerging approaches such as engaged scholarship (Van de Ven, 2007), evidence-based reviews (Tranfield *et al.*, 2003), design science (Van Aken, 2005) or dialogical mediated inquiry (Lorino *et al.*, 2011) do not regard practitioners as mere informants and data providers, but redefine and broaden their role by involving them as partners in defining and conducting research projects as well as in questioning and sense-making of approaches and findings (Pasmore *et al.*, 2008). Based on the early concept of 'scholarship of engagement' of Boyer (1996), we use in this paper the term community-engaged research for these collaborative inquiries of academics and practitioners. The notion of community draws upon the situated learning literature (e.g. Brown and Duguid, 1991; Lave and Wenger, 1991; Wenger, 1998) and emphasizes the shared interest of a group of academics and practitioners in a topic, problem or phenomenon which this group perceives to be important to interactively generate knowledge about it. The call for academic-practitioner communities or 'communities of inquiry' (Lorino *et al.*, 2011) rests on the argument that actionable knowledge emerges from and is embedded in the context within which research is conducted and is not a matter of appropriate diffusion and communication channels between industry and academia through which academic knowledge can be put into practice independently from space and time (Knights and Scarbrough, 2010; Antonacopoulou *et al.*, 2011). This view is in line with socioculturalism a theoretical strand of psychology which understands learning as unfolding from social interaction. Sociocultural theory has its roots in the work of Vygotsky (1978) who argued that in order to act in the world, humans rely on artefacts or tools which mediate their relationships and interactions with the world and which accumulate and transfer the knowledge stemming from using and changing these tools. It is this notion of socially and culturally constructed knowledge which is also much reflected in the organizational learning literature (e.g. Levitt and March, 1988; Cook and Brown, 1999). Knowledge is seen as being embedded in the interaction of individuals, tools and tasks which shapes the organizational context through which learning unfolds (Argote and Miron-Spektor, 2011; Bailey and Barley, 2011). The interaction of academics and practitioners in an academic-practice community forms the organizational context through which scientific and practical knowledge is integrated and actionable knowledge is co-produced (Senge and Scharmer, 2006; Antonacopoulou, 2009; Knights and Scarbrough, 2010).

Although community-engaged research can be seen as an answer to the fragmented nature of traditional knowledge production, it is not another research methodology intended to replace other modes of research (Styhre, 2009). Rather, its aim is to extend the possibilities for closer interaction and stronger relationships between academia and practice in research processes from situating and conceptualizing the problem to validating and communicating the findings (Figure 1). Although the interaction does not need to cover the entire research process, the main intention of community-engaged research is to establish forms of knowledge production in which different professional domains (academics and practitioners) collaborate and connect different modes of knowledge (scientific, practical, methodological and actionable) (Barker, 2004). It is more a 'generic research style' (Green *et al.*, 2010, p. 124) which puts emphasis on the context and the emergent and transient nature of the phenomena that are studied, but remains open to the combination of different approaches and methods of collecting and analysing data (Green *et al.*, 2010).

From the perspective of sociocultural theory, we suggest that three aspects of collaborative learning processes characterize community-engaged research: the social interaction between academics and practitioners,
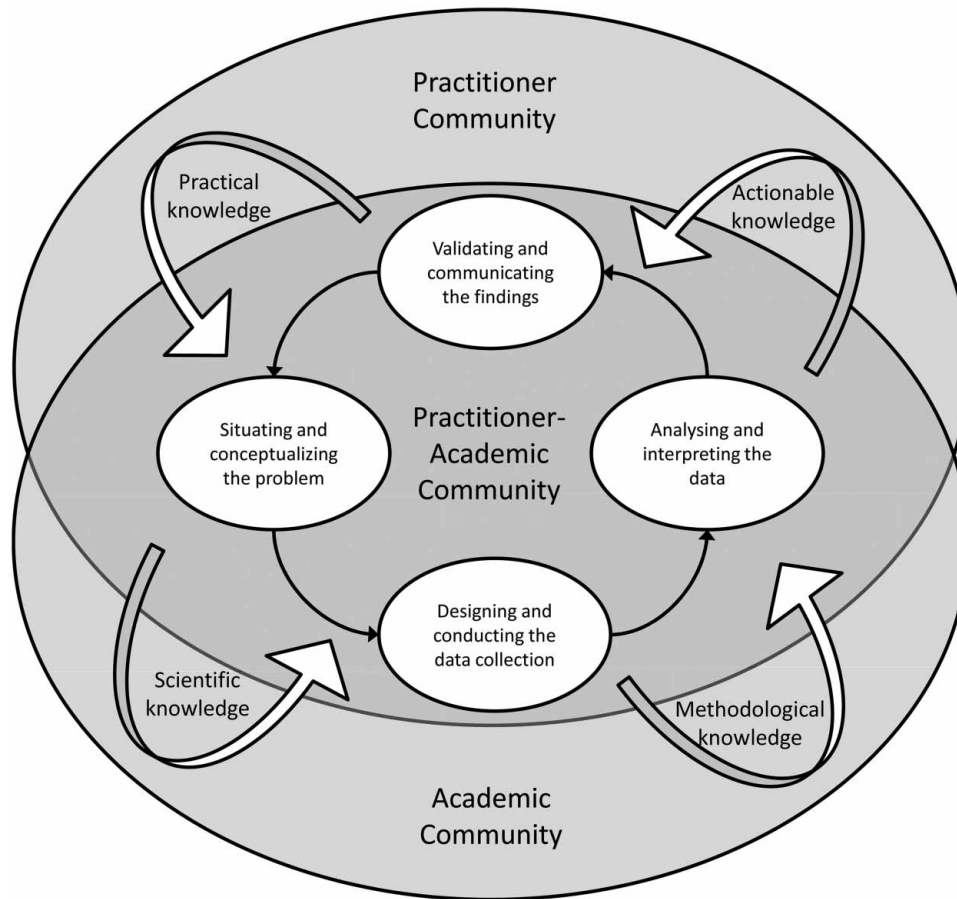
Figure 1 Community-engaged research

the contextual embeddedness of the research process and the mediating role of research methods.

Social interaction between academics and practitioners

According to sociocultural theory interaction is a fundamental aspect of learning, since only the interaction with others generates meaning to activities; learning emerges through the social construction of meaning (Vygotsky, 1978). Through interaction 'individuals may challenge each other's understandings and offer competing theories about underlying problems and potential solutions' (Honig, 2008, p. 637). In order to attain interaction between practitioners and academics, Van de Ven and Johnson (2006) suggest four principles to design community-engaged research: (i) address complex and striking problems that are grounded in the experience of practitioners, (ii) involve practitioners as co-investigators so that complementary perspectives are shared, (iii) build relationships of trust and candour through extended project duration and (iv)

employ multiple models and methods to juxtapose and compare alternative explanations for the complex problem.

Van de Ven (2007) further suggests that interaction of academics and practitioners in learning communities involves negotiation and collaboration. Negotiation refers to the dialogue-based process between academics and practitioners to understand the relevance of problems and solutions to particular situations in the light of existing and prevalent cultural norms, beliefs and dominant rationalities (Honig, 2008; MacIntosh *et al.*, 2012). It stresses the situational and multifaceted character of meaning which is shared and traded in the research process (Pettigrew, 1985; Flyvbjerg, 2006). Engaging practitioners in a dialogue is seen as a suitable way for academics to understand the underlying values of an organization and, by doing so, to become a change reflector and co-owner of managerial problems (Van Marrewijk *et al.*, 2010). Collaboration refers to the joint work of academics and practitioners which may occur in different phases of the research process. It points to the interrelatedness of theorizing and acting.

Theoretical concepts emerge in the course of activities through the reflection on events of practice; practitioners become inquirers (Lorino *et al.*, 2011; Zundel and Kokkalis, 2010). Whether and how academics and practitioners will participate in collaborative actions of knowledge production depends on the extent to which they perceive these actions as meaningful. That is, the level of interaction in research projects can vary (Martin, 2010).

McKelvey (2006) more generally expressed doubt that engagement principles as suggested by Van de Ven and Johnson's (2006) would be simultaneously achievable. He sees his scepticism nurtured by the pluralistic perspectives and conflicts that the engagement of different stakeholders in research would necessarily entail and the difficulties for the academic to maintain a position that allows for the generation of novel and significant scientific knowledge. This view is supported by Minkler (2005), who stresses the challenge in defining the practical problem which can deviate from the initial assumption of the academic and which can be burdened by conflicting interests. In a similar vein, Bartunek (2007) argues that the challenge particularly lies in establishing academic-practitioner relationships which require relational skills to span the boundaries between both groups, which often hold preconceptions and stereotypes. Cultural identity and separation and their continuous reproduction may additionally lead to power differences which amplify at expert–client relationships (Wallerstein and Duran, 2006).

Contextual embeddedness of the research process

The production of knowledge through the interaction of practitioners and academics in community-engaged research implies a relocation of research activities in the contextual setting of practice. Practice becomes the epistemological source of knowledge through research activities facilitating the transformation of this practice (Sannino *et al.*, 2009). It is this notion of understanding through transformation which socioculturalists put forward to underline the dual role of practice as epistemological context for generating knowledge and validating this knowledge through its practical effects (Lorino *et al.*, 2011). Depending on the type of engagement and the methodological approach, the extent to which knowledge is developed and validated through practice can differ. Put differently, what academics and practitioners learn will depend on what they are doing together (Sutter, 2011). In the research process (see Figure 1), for example, continuous feedback of conceptual insights emerging from academic's interpretations of collected data allows practitioners to challenge their way of working and to create knowledge

for instrumental use (Green *et al.*, 2010). Here, the research process becomes intertwined with practice through the validation and communication of findings generated by the academic in a way which relies more on problem awareness of the practitioner rather than practical consequences of this awareness. Opening up new understandings of organizational practice may also evolve through permanent exchange or dialogical interaction between academics and practitioners who reflect on their own 'theories of action' (Schön, 1983) and make sense of their activities. Research becomes more embedded in the contextual setting of practice with situating and conceptualizing problems and validating insights as joint activities of academics and practitioners. Nonetheless, the transformation of practice is still a mind experiment imposing generated insights on the specific situation to explore potential consequences for the current way of working. By moving from mind experiments to concrete interventions as validation means or data collecting instrument knowledge is developed through transformation and research fully becomes an emergent process in the changing context of practice.

However, the more research activities intertwine with practice context, the less defined and predictable the research process becomes (Ozanne and Anderson, 2010). The volatility of the research process may be caused by tensions between academics and practitioners that evolve from different reward systems, constraints on involvement which may include the inability or unwillingness to donate time for the research, and the implementation of actions which may be constrained by the nature of funding, policy regulations and different timeframes (Minkler, 2005; Marcos and Denyer, 2012). It may also happen through a political process in which organization members form coalitions to contend with others for the control of the problems they regard as relevant (Honig, 2008). These factors are often seen as difficulties in the research process that need to be mitigated but Buchanan and Bryman (2007) argue that 'they are naturally occurring and unavoidable influences that must be accommodated in decisions concerning choice of methods as they cannot simply be overcome through diligent planning' (p. 483).

Mediating role of research methods

Sociocultural learning theory stresses the importance of artefacts or tools for interaction, since they mediate the relationship of individuals with the world (Vygotsky, 1978). Mediating tools include physical tools (e.g. technical devices), symbolic tools (e.g. theoretical models) and social tools (e.g. norms) (Miettinen, 1999). They accumulate and transfer 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 (Kaptelinin *et al.*, 1995; Wenger, 1998). As such, tools give structure to activities and include criteria of acceptable conduct (Barley, 1986). Moreover, they invite negotiation and discussion about the appropriateness of activities to respond to new situations and achieve certain goals (Brown and Duguid, 1991; Klemmer *et al.*, 2006). Tools thus both 'afford cultural practice in that they provide a means of action and constraint new action through the specific purposes suggested by prior use' (Smagorinsky *et al.*, 2003, p. 1407). It is particularly this duality of tools which we consider as challenge for the establishment of academic-practice research communities. On the one hand, academics and practitioners appear to belong to semiautonomous domains with their own sometimes incommensurate cultural means such as language, concepts, methods and modes of acting (Astley and Zammuto, 1992). The perceived differences become manifest in these mediating tools and are grounded in prior practices of both groups and their socially constructed understanding about the nature of their activities. They may act as constraints for a closer interaction between academics and practitioners by imposing different forms of discourse and foci of interest and positioning 'theory and practice as separate domains, with theory the more ethereal and authoritative and practice the more protean and pragmatic' (Smagorinsky *et al.*, 2003, p. 1400). On the other hand, if we understand knowledge production as a social interaction of professional domains, theory and practice are inseparable and become intertwined in the research process (Zundel and Kokkalis, 2010). Relevant knowledge 'is not an object that exists independently of collaborative relationships, but rather has to emerge from them' (Knights and Scarbrough, 2010, p. 1305). The relationship building cannot be separated from the actual research. Research activities themselves form the social context through which academics and practitioner interact and make sense of their roles in and contributions to the knowledge production (Reason, 2004). It is thus the research methods – that is, the way of framing and conceptualizing the research problem, collecting and analysing the data as well as reporting the results – that mediate this interaction and have to fulfil the dual promise of knowledge enhancement and practice transformation. For example, in ethnographic research practices the academic becomes involved in the daily actions of practitioners and the research process evolves with the course of these actions. While building relationships and becoming a member of the practice community, the academic obtains intimate insights into the behaviour and interactions within the communities which offer the possibility to inform community interventions, since they respond to and are aligned with the specific circumstances of localized practice (Harvey and Myers, 1995; Pink *et al.*, 2010). At the same time the choice of research methods is shaped by the interaction context with its organizational, historical, political, ethical, evidential and personal characteristics (Buchanan and Bryman, 2007).

Engagement in a longitudinal research project

A reflective approach

In the following, we report on a longitudinal research project which intended to base its research design upon the principles of community-engaged research as described by Van de Ven and Johnson (2006). Rather than elaborating on the findings of the research project itself, the focus of the account that follows is on the emergence of different engagement phases during the project, the actionable knowledge developed in these phases and the context dependency of employed research activities. The research findings are documented elsewhere (see Verdonschot, 2009; Hartmann *et al.*, 2010, 2014; Hartmann and Bresnen, 2011; Dewulf and Kadefors, 2012).

By adopting a socioculturalism perspective, we discuss the process of engagement and learning by focusing on the social interaction between academics and practitioners, the contextual embeddedness of the research and the mediating role of research methods. We collected data on the interaction between academics and practitioners through our direct involvement in the research project. As active participants we were able to attend and observe the meetings and discussion we had with our research partners. That implies a reflective stance towards the experiences and insights gained in the project, and it is this sense-making of the evolvement of the collaborative process which represents the main source underpinning our argument of community-engaged research as a learning process of academics and practitioners embedded in the changing context of practice. In addition, we used minutes of meetings and email conversations with our research partners, and research reports and presentations as sources to reconstruct the research process. However, it should be noted that this retrospective reflection was not part of a deliberate research designed ex ante and focusing on the collaboration between industry and academia. The interest in rethinking and problematizing the engagement process grew with the methodological and collaborative challenges that we encountered during the actual research. We had to scrutinize and revise our

Table 1 Programme units

Programme unit	People involved	Role in programme
Programme team (RWS central office)	1 Programme manager (RWS general manager)	Coordination of pilot activities
	5 Pilot liaison managers (RWS HRM, maintenance planning, procurement staff)	Supporting pilots with resources
	1 Communication manager	Dissemination and wider application of pilot results
	1 Office support staff	
Research team	2 Business administration researchers	Conducting research for pilot and programme teams
	2 Public administration researchers	Scientific monitoring of pilot and programme activities
	2 Construction management researchers	Scientific reflection on pilot and programme results
	1 Innovation management researcher	
Pilot project 1 (RWS regional office)	1 Project manager (RWS regional district manager)	Developing and testing new asset management practices
	4 Project staff members (RWS operation and maintenance planning staff)	Reporting of results
Pilot project 2 (RWS regional office)	1 Project manager (RWS regional district manager)	Developing and testing new role of traffic officers
	3 Project staff members (RWS traffic officers and maintenance coordinator)	Reporting of results
Pilot project 3 (RWS traffic management centre)	1 Project manager (RWS regional district manager)	Developing and testing new traffic management practices
	4 Project staff members (RWS traffic coordinators)	Reporting of results
Pilot project 4 (RWS regional office)	1 Project manager (RWS regional district manager)	Developing and testing new procurement practices for maintenance of waterways
	3 Project staff members (RWS contract manager and maintenance planning staff)	Reporting of results
Pilot project 5 (RWS regional office)	1 Project manager (RWS regional district manager)	Developing and testing new procurement practices for maintenance of road infrastructure
	3 Project staff members (RWS contract manager and maintenance planning staff)	Reporting of results
	3 Project staff members (maintenance contractor)	
RWS directorate	General director RWS	Strategic control and responsibility of programme
Advisory team RWS	2 RWS general manager	Providing advise over scope and content of pilot projects
	3 RWS regional business managers	Ensuring connection of pilot project with RWS organization for broad implementation of results
	1 Secretary (HRM staff)	
Advisory team CEOs	General director RWS	Involving other parties of the infrastructure sector in the programme
	General director Highways Agency	Stimulating learning between RWS and other infrastructure agencies and private parties
	General director Flemish Road Directorate	
	CEO Dutch engineering firm (partner)	
	CEO UK engineering firm (partner)	

assumptions about the research process and it was this unexpected occurrence that raised our awareness for the engagement with practitioners and triggered a reflective attitude towards the contextual embeddedness of our research activities (cf. Alvesson and Kärreman, 2007; Alvesson and Sandberg, 2013 for reflexive methodologies challenging underlying assumptions of established theories and frameworks).
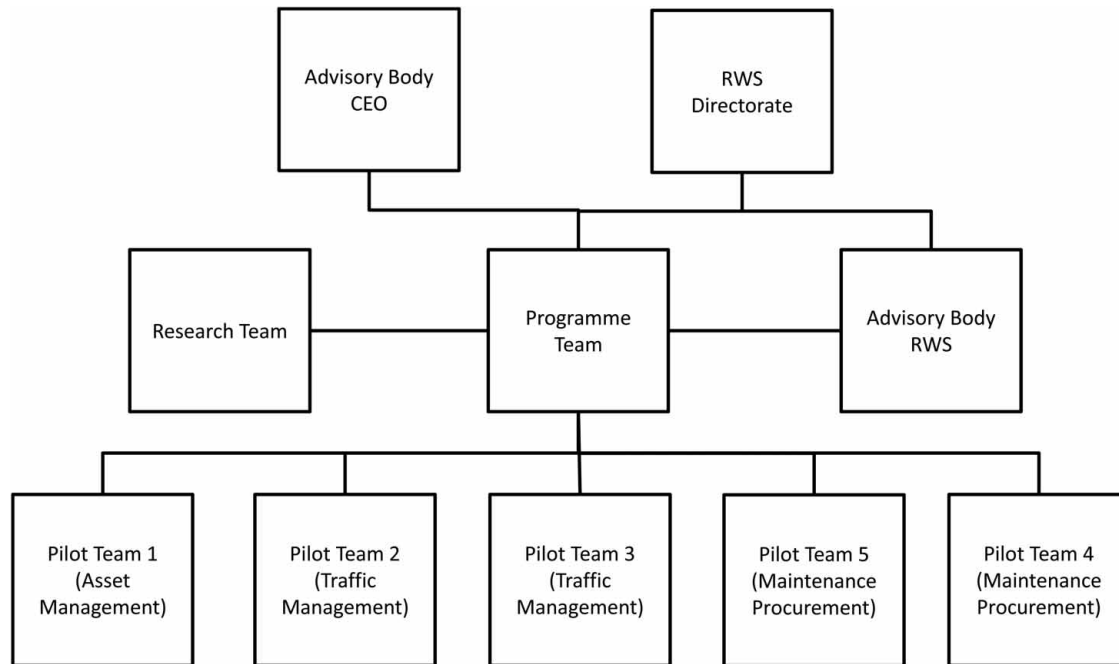
Figure 2 Programme structure

The research setting

Rijkswaterstaat (RWS), the Dutch Highways and Waterways Agency, is the executive arm of the Dutch Ministry of Infrastructure and Environment. In 2009, RWS was responsible for managing 5701 km of carriageways and 65 250 square kilometres of the main water system in the Netherlands. Since 2004, RWS has been undertaking 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. Part of this reorientation has been the realignment of the RWS procurement strategy and organizational structure in order to move from the role of an executing organization into that of a commissioning authority. RWS initiated a number of programmes and projects to facilitate the change process. One of these programmes was the Partner PIM. The aim of PIM was to search for innovative ways of working in the operation and maintenance of road and water infrastructures. The learning and innovation process of PIM was organized around five pilot projects which were located in different regional business units of RWS and a programme team at a central level which facilitated the work of the pilots. The pilot projects covered three topics: traffic management (two projects), asset management (one project) and maintenance procurement (two projects) (Figure 2).

The guiding principle of PIM comprised the development of new knowledge and practices on the operational level of RWS. PIM provided the freedom and support for operational staff members to experiment and learn in their direct working environment. Besides the strong involvement of operational staff in the innovation process, PIM was aspiring to share knowledge and experience with other countries (the UK and Belgium) and the construction market (engineering firms, contractors and industry associations). In addition, a scientific consortium including five universities from the Netherlands, Belgium and the UK was asked to monitor the innovation processes of the pilot projects and actively support the learning of the project teams and the dissemination of lessons learnt (Table 1).

At the outset of the academics' involvement as scientific partners of PIM, it was agreed with the programme team to apply a research approach which allows academic and practitioners to jointly engage in the development and implementation of new work practices for infrastructure management. There was the common understanding that such an approach would be perfectly in line with the bottom-up learning approach of the programme. Accordingly, the first research design was structured around three phases: orientation, monitoring and reflection. The orientation phase (six months) was meant to get involved in the work of the pilot projects. The monitoring (12 months) was planned to be the main phase of the research. It was intended to design, test and evaluate new work processes and tools together

with the pilot project teams, in order to generate knowledge on the applicability of developed tools and processes and the learning process leading to these new ways of working The reflection phase (six months) aimed at drawing implications from the monitoring for the future development of RWS and, more generally, the innovation processes at public agencies. However, shortly after the orientation phase the research process stagnated. Although the academics continued engaging with members of the programme team and the pilot projects in different forms throughout the research, the initial ambition to establish a collaborative inquiry and change process at RWS was hardly achievable. It took more than two years before the academics were able to develop and implement the first intervention together with members of one of the pilot projects. From an engagement perspective, the actual research process can be divided into four phases, the characteristics of which are depicted in Table 2. The following sections elaborate more on these phases and pay particular attention to the social interaction at the programme and project levels, the contextual mechanisms that led to the emergence of and the transition between the phases, and the mediating role of the research methods in the transition process.

Social interaction at the programme and project levels

In line with Van de Ven and Johnson (2006) interaction between academics and practitioners took place, since the problems that were addressed in the research were directly related to the challenges RWS encountered as a public infrastructure agency. There was a strong and explicit expectation that our involvement should contribute to the objectives of the PIM programme. However, there was a clear separation between collaboration and negotiation at the programme level and at the pilot project level.

Collaboration at the programme level

In the first two phases (orientation and evaluation), collaborative activities were mainly located at the programme level and had a strong focus on initiating the research. They can be best characterized as informative and evaluative (Van de Ven, 2007). Through meetings academics and programme team members jointly developed the research questions which aimed at generating insights into the role and usage of performance indicators within the pilot projects and the learning capabilities of the pilot teams. The programme team members also introduced the academics to the pilot projects, delivered contextual knowledge about the RWS organization and working processes and provided pilot and

programme documents. In addition, regular meetings with the PIM programme were used to discuss the progress of the research and first findings, which helped contextualize the research and validate generated insights. The academics kept control of theoretically framing and designing the research. By adopting the perspective of public policy theory and organizational learning theory, they collected data through semi-structured interviews and focus group meetings with team members from the four pilot projects and people from other innovation programmes at RWS. They used a workshop on performance measurement in infrastructure management with the pilot team members involved in the interviews and two workshops at the PIM progress conference to again discuss findings from the interviews and identify reoccurring pattern in the pilots. At the same time, the workshops were an additional source for studying the bottom-up learning capabilities of the RWS organization. Despite the collaborative effort, in the first two phases the academics remained outside of the immediate working practice of the pilot projects. The knowledge generated was theoretically underpinned and contextualized but not, as initially intended, co-produced through practice transformation and validated through its practical effects (Lorino *et al.*, 2011).

Negotiation at the programme level

The interaction with the programme team was always accompanied by negotiations about the level of interaction with the pilot project teams. Academics and programme team had contrary interests in the way of knowledge production and, related to this, in the way of interacting with the pilot projects. From the beginning the academics were passionate proponents of an active participation in the pilot projects. Their initial idea was to apply a research approach which would allow practitioners and academics the joint development and implementation of interventions. Collaboration in problem solving played an important role in this approach, which went beyond the typical ex post discussion and evaluation of problems and solutions. Their ambition was to intertwine research and practice activities in the pilot projects. However, through the negotiation process it became obvious that the programme team was willing to provide information and participate in formal and informal discussions and valued feedback, if they regarded the academics' activities to be relevant for their own work. Since their work was to conceptually support and evaluate the pilot projects but not the direct participation in the pilots, they preferred an informed and evaluative mode of engagement. The joint design and implementation of solutions to immediate work problems did not fit into their own

Table 2 Engagement characteristics of the research project

	Engagement phase			
	Orientation (first year)	Evaluation (second year)	Reflection (third year)	Intervention (fourth year)
Engagement level	Programme	Programme	Project	Project
Engagement mode	Collaborative/informed	Collaborative/ evaluative	Collaborative/reflective	Collaborative/ participative
Engagement scope	Situating problem Validating findings	Situating problem Designing data collection Validating findings	Situating problem Designing data collection Validating findings	Situating problem Designing data collection Analysing data Validating findings
Engagement role of the academic	Outsider/interpreter	Outsider/evaluator	Insider/reflector	Insider/facilitator
Engagement role of the practitioner	Insider/advisor	Insider/provider	Insider/annotator	Insider/interventionist
Practical knowledge provided	Organizational context of RWS programme and pilots Working processes of RWS programme and pilots	Innovation practice of RWS[a] and HA[b] Challenges of innovative contracting at RWS and HA	Maintenance work of RWS pilot Challenges of innovative contracting in RWS pilot	Maintenance work of RWS pilot Challenges of collaborative working processes in RWS pilot
Scientific knowledge provided	Public policy theory Organizational learning theory	Innovation theory Organizational learning theory	Activity theory Organizational learning theory	Activity theory Organizational learning theory
Methodological knowledge applied	Explorative case study research	Comparative case study research	Ethnographic research	Action research
Actionable knowledge generated	Development and usage of performance indicators at public infrastructure agencies Design of learning environment at public infrastructure agencies	Design of bottom-up innovation processes at public infrastructure agencies	Design of implementation processes of performance-based contracts at public infrastructure agencies	Design of collaborative learning processes at public infrastructure agencies

[a] Rijkswaterstaat (Netherlands).
[b] Highways Agency (UK).

agenda, interests and perception of what the academics should do. We were appointed by the PIM programme team which had a vested interest in the research. That included the academics' role as 'independent' and 'objective' evaluators to strengthen the accountability of the programme team for the programme's success. In this sense, the knowledge produced by the researchers served justification reasons (Nicolai and Seidl, 2010). It was the official relationship with the programme team and its mediated access to the pilot projects which, from the perspective of the pilot projects, have put the researches in the role of outsiders. Since the academics' intended engagement in the activities of the pilot projects was seen as an additional burden rather than a meaningful and valuable contribution to this end, the programme team acted as a barrier for participative interaction of the academics with the pilot projects. This means that even within a single organization, engagement will depend on the interests of organizational layers, units and persons

and the roles they are supposed to play in the interaction with academics (Honig, 2008).

Negotiation at the pilot project level

A critical negotiation at the pilot project level was also related to the research approach and again depended on a particular person and his interests and position within the organization. In the third year, the programme team and academics formulated research questions pertained to the learning of partnering in road maintenance in one of the pilot projects (pilot 5). The academics again suggested an approach in which they would actively participate in the partnering process by analysing maintenance problems together with the project team and would jointly design and evaluate interventions that stimulate a collaborative environment for solving these problems. Although the programme team agreed upon the research proposal, they wanted to discuss it beforehand with the pilot team. Since the academics again expected slow and difficult communication, they suggested direct communication with the project team and were able to approach the regional business manager of the region where the pilot project was located. They suggested monitoring the collaboration between RWS and the contractor. The fact that the academics already knew the regional manager, that the manager was an advocate of the idea of performance-based contracts and of closer collaboration with the private sector, and also that the project had pilot status within the organization helped to gain entry to the project. However, the suggested approach raised the manager's concern. From the manager's perspective, a strong engagement with the project team represented an additional burden rather than a beneficial undertaking. On the one hand, this appraisal had its origin in the nationwide attention that was given to the first application of the new generation of maintenance contracts at this time. On the other hand, the new contract was seen as a considerable change in the work of the operational staff members, and introducing extra interventions would ask too much of them. The academics negotiated with the manager about an appropriate research approach which would restrict the additional workload of the project team members but would promise research results which would be accessible for the immediate practice of the project team. The outcome of this negotiation process was an ethnographic approach which started off with passive observations of the interaction between RWS and the contractor with the offer to the project team to provide feedback on what had been observed. In other words, the ambition of actively engaging with the project team right from the start of the research had to be adjusted. The negotiated approach was also discussed and approved by the two project managers of RWS and the contractor. Although the methodological knowledge was brought in by the academics, the selection of an appropriate approach required a dialogical process through which mutual understanding of interests, views and concerns could be reached (Antonacopoulou, 2009; Greig *et al.*, 2013).

Collaboration at the pilot project level

After negotiating and approving the research approach collaborative activities moved in the last two phases (reflection and intervention) to the project level and mainly involved the emerging interplay of theorizing and acting (Zundel and Kokkalis, 2010) in the specific context of the pilot project team. In line with Van de Ven (2007), an action research approach was followed. The academics attended regular meetings on a regular basis, including the bi-weekly meetings of the operational staff of RWS and contractor and the meetings of the middle and top management of both organizations every six weeks. During the meetings, the academics observed the project team through the theoretical lens of activity theory to determine 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. After a time it became natural for the project team members that someone else was present, and very soon they started to ask for feedback after the meetings. At the beginning, these reflections remained uncommented, but in the course of time they were increasingly received as contributions to the on-going discussion about the collaboration between both parties. The academics became insiders of the pilot project, and actionable knowledge was jointly generated through the discussion and sense-making of the observations made by the academics and fed back to the practitioners (Van Marrewijk *et al.*, 2010). It covered the specific problems related to opposing positions taken by team members of the pilot project that had become apparent during the regular meetings. Finally, the generated insights led to an intervention session which addressed a conflict-laden issue in order to raise awareness of the perceptions of each contract party and the emergence of divergent interpretations. The project team and the academics tried to understand why this issue was difficult to address by having a dialogue about the reasons for taking up certain positions towards the problem. The main aim of the session was not to provide a solution for the particular problem at hand but to understand and theorize about the circumstances and the 'taken-for-granted elements of their practice' (Greig *et al.*, 2013) that prevented the pilot

project team from dealing with the problem in the first place and to allow the project team to identify advanced procedures for coping with similar situations in the future. Both organizations recognized their inactive position, the lack of coordination between them and the vicious circles of reinforcing perceptions. The pilot team members started to think about possible interventions which might help their perceptions to converge. Interventions that were developed and implemented included small and immediately applicable changes in the daily interaction of the two organizations, such as providing work places for contractor staff at the RWS office. Other interventions included more substantial improvement, such as training the RWS team members to apply the new method of controlling the contract and a procedure for the timely reporting and handling of unexpected events. In this phase of the research, knowledge production became a joint activity of academics and practitioners embedded in the transformation of practice.

Contextual embeddedness of the research process

Through collaboration and negotiation between practitioners and academics the research process evolved with the changing organizational setting. This means, on the one hand, that actionable knowledge was generated through research activities which facilitated the transformation of practice (Sannino *et al.*, 2009). On the other hand, it also means that the research process became more volatile and less predictable (Ozanne and Anderson, 2010).

Transformational change through research activities

The insights generated through the discussion of observations and feedback given to the pilot project team during the third and fourth phases did not simply induce change of the collaborative practice. Rather, they helped in articulating the need for and the direction of change by revealing hidden beliefs and conflicting values underlying the perceived problems (Harvey and Myers, 1995). Gradually, team members of the pilot project started involving the academics in the discussion concerning the partnering development, confronting the academics with their perception of problematic issues and asking for advice. That was a critical moment for the research, since it offered the opportunity to actively participate in the partnering process but simultaneously entailed the risk of being regarded as mere adviser or expert and getting caught between conflicting views. Due to the relationship that had developed between the academic and the pilot project team and the recognized benefits of the critical

reflections, it was possible to refine the academics' role from passive observer to active participant, which culminated in the intervention session. In this sense, the co-produced insights raised problem awareness about the issues faced by the project team members and sensitized them to possible causes. They formed the input for a change process of the pilot project team which started with analysing the situation and continued with developing possible improvements. The trigger for this process was the mere fact that the academics were regularly present at and around meetings, which created an environment of mutual interest in each other and the behavioural aspects of the relationship between RWS and the contractor. The academics' reflections and questions stimulated self-reflection of the pilot team members, which in turn initiated the change process.

Volatility of the research process

Already during the orientation phase, a general discussion emerged within the programme team about the focus of PIM. Based on the results that had been achieved thus far, the future direction and structure of the programme had to be determined. A critical question that needed to be answered was: Should the results of the pilot projects be rolled out or should the pilot projects continue experimenting? At this moment the pilot projects were at different stages. Two of them had already achieved concrete results which could be easily implemented, since they did not require additional changes in the way of working at RWS. The two other pilot projects had a more systemic character because they affected the entire work processes at RWS with considerable changes in the competencies of employees, the relationship with market parties, the contractual arrangements and the infrastructure management tools. Moreover, these two pilot projects were in a conceptual phase. New ways of working were modelled but had yet to be implemented. The programme team decided to pay more attention to these two pilot projects. However, that did not mean that the academics could apply their proposed research to the two pilot projects. From the perspective of the programme team, the two pilot teams were struggling a lot with the complexity of their projects, and the academics' involvement would increase the complexity and introduce additional disturbance. In order to facilitate the discussion of crucial issues which the pilot projects bring forward for the RWS organization but to keep the direct disruptions for the pilot projects as small as possible, the programme team planned to set up working groups at the programme level. The intention was to involve people from other regional business units in the on-going work of the pilot projects and to give feedback

from other experts. The programme team and the academics agreed upon a research approach in which the academics would participate in the working groups by contributing to the content-related issue of performance management and by methodologically facilitating the learning process of the groups. The first working group was expected to start a half year later. However, none of the working groups was established. In other words, the academics could not continue any of the research concerning the topic of performance measurement. Moreover, although they tried to stimulate discussion about alternative research questions, the programme team did not see any potential areas for their active involvement. One of the reasons was that the focus of the programme team shifted from content-related issues (e.g. integration of maintenance work) to process-related issues (e.g. dissemination of results). Another reason was that the programme team members regarded their own work and the process of the programme as very dynamic, which made it difficult for them to determine the academics' direct participation. They again suggested a more reflective and evaluative contribution of the academics, which according to them should comprise the writing of essays scientifically contrasting the work of the programme. The academics did not see the practical and scientific benefit of essays without any empirical grounding. Although an intensive discussion and negotiation about possible research objectives and approaches took place, three partners of the scientific consortium were not involved in any research activities in the second phase. For the remaining partners, the research objective and approach had to be drastically adjusted. That is not to say rigor and intellectual challenges were sacrificed for relevance and quick wins. Rather and as described above, academics and practitioners constantly (re)negotiated research objectives and approaches to adapt them to the current needs, interests and constraints of the programme and projects. Knowledge co-production implies a contextually dependent research process which is characterized by intensive and contested academic-practitioners negotiation about content and process of the research (Knights and Scarbrough, 2010) and which may take unexpected directions, go beyond schedule or even get stuck (Minkler, 2005).

Mediating role of research methods

The transition from outsiders to insiders of the pilot project took place through a gradual process from passive involvement to active participation. Paradoxically, it was the unintended passive involvement that paved the way for co-producing and intervening activities at the project level. The negotiations about the research objective and approach were a critical element for the engagement, since they created access to the project and commitment to the research. Moreover, the agreed-upon ethnographic approach, which included observations and informal talks over a longer period at the beginning of the involvement in the pilot project, helped academics and project team members make sense of their roles in knowledge production and ascribe meaning to their emerging relationship. That finally allowed the academics to reflect on the partnering practice of the project team through the acquirement of in-depth insights into the highly localized nature of the relationship between RWS and the maintenance contractor. They were able to invite team members of the pilot project to a discussion about observations they had made and to stimulate their self-reflection. These micro-cultural aspects of the pilot project team could not have been obtained by only interviewing team members at selective times, since they were embedded in the everyday routines and manifested themselves in the actions of the team. This is in line with Pink *et al.* (2010), who state that ethnographic practice is able to 'dismantle the facades that obscure different levels of […] local knowledge' (p. 658) and, as they further argue, it is this learning about the local knowledge which enables them to generate appropriate recommendations for informing practice. The creation of actionable knowledge for the pilot project, that is to say, the development of effective interventions of immediate practice change required the understanding of the implicit mechanisms in the collaboration of RWS and the contractor as well as the project team' awareness of these mechanisms. In other words, in its mediation role the ethnographic approach was not only meant to collect data on the partnering practice but also to open up the possibilities for a dialogue between academics and practitioners about research findings and the research process itself. It is this openness for dialogue which will decide on whether research methods afford or constrain interaction between academics and practitioners (Smagorinsky *et al.*, 2003). The interviews used in several phases of the research project are another example. In the first two phases, the interviews were applied first of all as a pure data collection tool to elicit the use of performance indicators and the learning processes in the pilots. By following a prepared interview guide, the roles of interviewee and interviewer and thus researcher and researched were clearly defined. At the same time, the interviews served as a means to get in contact with team members of the pilot projects and establish relationships that facilitated access in later phases. During the last two phases of the research, interviews were used in preparation of the interventions session to explore the expectations and motivation of each team member from the RWS side and the contractor side at the individual

level. The interviews were set up in an interactional mode to allow the practitioners to reflect on the collaboration with their counterparts in the project and to jointly build up with the academics a representational understanding of perceptions and hidden beliefs. As such they played the role of an intermediate tool, producing an artefact which mediated the interaction during the intervention session (Lorino *et al.*, 2011).

Discussion

Community-engaged research as reciprocal learning process

Our retrospective reflection on the research project reveals that community engagement in EPO research requires continuous interaction and negotiation between academics and practitioners to determine research objectives, questions and approaches that reflect common interests in a practical problem (Van de Ven, 2007). It is 'a social process descriptively more easily characterized in the language of muddling through, incrementalism, and political process than it is a rational, foresightful, goal directed activity' (Pettigrew, 1985, p. 53). Our research project suggests that the formulation of research questions and the choice of research approaches in community-engaged research are not stand-alone decisions taken at the beginning of the research process but will reoccur in revised forms in different phases of the research (Buchanan and Bryman, 2007). We embarked the research with clear questions and research approaches but regularly had to (partly) adapt them based on our refined understanding of the RWS organization, the structure and working of the PIM programme and pilot projects, and the dynamics involved in programme and pilots. We had to abandon our initial approach of directly engaging with the pilot projects and, based on the discussions with RWS practitioners, had to find modes of inquiry that took organizational peculiarities and individual and organizational interests into account. Reorientation of programme goals, restricted access to pilot projects and perceived role of research for the programme were factors that we needed to consider while formulating appropriate research questions and setting up a rigor research design. Designing and conducting community-engaged research require a deeper understanding of the practice problem and its context by negotiating and interacting with practitioners (Honig, 2008). It is a learning process of how to do research in a particular organizational context through building on the expertize and capabilities of practitioners and appreciating their priorities (Antonacopoulou, 2009). Learning then also emerges by confronting practitioners with the

interpretation of collected and analysed data and allowing for debate and reinterpretation. At several occasions in our research project (e.g. workshops and meetings), practitioners reassessed and discussed the generalized findings of our analysis in the light of their own experience which finally was conducive to the relevance and validity of the research. At the same time, our reflection on the organizational practice helped practitioners in the pilot project to become aware of hidden beliefs and unnoticed assumptions; they better understood their working relationship and were able to change it. At the programme level, they learned to better frame and legitimize their work based on our proposed concepts and schemes (Tenkasi and Hay, 2004; Nicolai and Seidl, 2010).

Community-engaged research as emergent process of collaboration

Our experiences also suggest that the reciprocal learning process and collaborative relationship building are interrelated. Actionable knowledge gained from negotiated and collaborative research is able to induce a shared interest in the understanding of a practical problem and, by doing so, it provides the basis for continuous engagement in modes that can generate further insights into the problem of common interest (Marcos and Denyer, 2012). The interaction of academics and practitioners integrates the co-production of knowledge and the development of meaning attached to this co-production process. In our research project, the engagement gradually intensified from informed to participative modes. Although we are cautious in drawing general conclusions, we propose that, particularly in longitudinal research projects, a lower level of engagement at the beginning of the research can initiate learning and relationship building without imposing too many organizational constraints and can pave the way for more interactive inquiries at later stages. As our engagement experience indicates, both academics and practitioners need to retain realistic expectations about the possibilities of collaborative research activities and the practical relevance of the knowledge produced (Martin, 2010). Engagement mode and scope are constituted through negotiations on research questions, research approaches and interpretations of findings taking interests and concerns of academics and practitioners into account. Informed, collaborative and evaluative modes of engaged research (Van de Ven, 2007) are then fruitful ways for the advanced understanding of complex, real-world problems and as such are a prerequisite for developing actionable knowledge and changing practice. They particularly offer the possibility 'to open up new ways of seeing, of creating vantage points and alternative perspectives for practitioners' (Zundel and Kokkalis,

2010, p. 1221). However, to some extent the academic remains an outsider of the actual work processes, which diminishes the chance of results being implemented (Markides, 2011). The transition from an outsider to an insider and towards transformation modes with the design and implementation of intervention remains difficult and seems to require research approaches and methods that act as mediating tools by gradually allowing academics and practitioners to recognize themselves as partners in the process of knowledge production. In the research reported in this paper, it was particularly the ethnographic practice which enabled the joint analysis and reflection on the developmental changes in the pilot project. It provided the basis for interventions which were a suitable means of uncovering interpretations about the nature of the problems within the pilot project and of allowing discussion on possible ways to respond to and overcome the perceived problems. Thus, the negotiated research approach facilitated the learning process of the pilot project team and in doing so uncovered the benefits of a joint knowledge construction and change intervention of academics and practitioners. More generally, research approaches and methods (e.g. interviews), general concepts and schemes do not only serve as means to generate, structure and interpret data. They also give structure to the interaction and, thus, the relationship building between academics and practitioners.

Community-engaged research and its implications

Although the aforementioned is in line with the call for more contextualization in project organization research, it particularly emphasizes that the development of actionable knowledge implies a contextualized learning process. However, most of the project organization research reported in academic journals suggests research processes which appear to be decontextualized, diligently set up before the research and then followed in a linear manner. Our experiences suggest that project organization research with any form of community engagement is embedded in the context of practice and, thus, unfolds over time. An implication for the EPO researchers is that they should be more explicit about the contextual circumstances that lead to the formulation of research questions and the choice of approaches or methods. They should present 'the ways in which questions emerge and the respective interests underpinning the inquiry of research partners' (Antonacopoulou, 2009, p. 427). This should also include the extent to which the design of the research is the outcome of a negotiation process and a description of the engagement modes applied in different phases of the research. The research approach should not only be discussed in terms of its

rigor. The discussion should also address the role of the research approach in establishing collaboration with practitioners. Being explicit about the challenges involved would allow other researchers to more thoroughly understand and evaluate the evidence base that underlies conclusions. It can also support methodological training by providing insights into the appropriateness and effectiveness of research approaches and methods within the context of a particular practice (Buchanan and Bryman, 2007). Discussions of research findings should be always accompanied by reflections on the research process itself. Another implication for the EPO researchers is that they should be able to deploy a wide repertoire of research approaches, methods and theoretical perspectives, in order to flexibly respond to changes in the practice context while ensuring valid research results. Furthermore, they should be skilful enough to use these approaches, methods and perspectives in a way that relationship building, dialogue and discussion with practitioners are supported, the different valuations of practice problems are disclosed and organizational constraints such as resource limitations and political influences are identified (Bammer, 2008). Our research reflection revealed that with community engagement the research process becomes more vulnerable to organizational constraints and changing priorities and interests. Here, methodological pluralisms and inter-disciplinary openness become desirable traits of project organization scholarship for not only new lines of inquiry but also new modes of inquiry (Chinowsky, 2011).

Conclusion

The starting point of our paper was that EPO research with its multiple disciplinary pillars and its aim to study EPOs in their broad and complex context inevitably calls for some interaction and collaboration between researchers and practitioners. What we then refer to as community-engaged research are collaborative inquiries of practitioners and researchers located in the context of EPO practice. It is particularly the contextualization of research – a notion that has been recently received attention in the organization and management literature (e.g. Michailova, 2011; George, 2014) and the project organization literature (e.g. Cairns, 2008; Green *et al.*, 2010) – that suggests beneficial knowledge contributions from those who are directly involved in the practice problem under study. Although community engagement of academics and practitioners promises to increase the relevance of research results for EPO practice and to enrich insights and understanding of the existence and operation of EPOs (Chinowsky, 2011), establishing a collaborative research environment appears quite challenging (Amabile *et al.*, 2001; Coghlan and Shani,

2008). Based on the theoretical body of socioculturalism and the insights and experiences gained during a four-year research project at the Dutch Highways and Waterways Agency, we argue that this challenge is related to the dialectal and reciprocal learning process of academics and practitioners embedded in the changing context of the project organization practice. However, particularly the influence of the contextual setting of practice on research processes and, thus, results is still widely neglected in favour of the assumption that research with engagement elements is a context-independent process. The authors' intention is to create more awareness for the contextualized nature of community-engaged research and despite its reflective nature and associated disadvantages, the paper will hopefully provide valuable insights for initiating and conducting community-engaged research in EPOs and stimulating a further debate on the possibilities, challenges and limitations of collaborative inquiries between academics and practitioners.

Disclosure

No potential conflict of interest was reported by the authors.

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