Sub-theme:

54 Reshaping Workplaces: Workplace Innovation as Designed by Scientists and Practitioners

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Exploring the complementarity between Relational Coordination and Modern Sociotechnical System Theory

Abstract:

This short paper explores the theoretical and practical complementarity of two approaches of workplace innovation: Relational Coordination and the Modern Sociotechnical System theory. This exploration is done by describing the problematized Mechanistic work organisation in relation to its changing environment and by explaining how the two advanced theories can help tackle this organisational problem. The described complementarity of the two approaches is translated into a conceptual model and research questions on how formal and informal care providers can collaborate more effectively within and between organisations while at the same time enhance the quality of their work and work relations.

Introduction:

The fact that the 30th EGOS Colloquium has a subtheme dedicated to the possible complementarity of the Modern Sociotechnical System approach (MST) and Relational Coordination (RC) indicates that practitioners and scientists think that the time is right to explore why and how this complementarity might take form. In order to reach this purpose we will first begin by framing and defining work organisation as a key concept within an open systems perspective. Second, the Mechanistic work organisation of many organisations (or networks of organisations) will be problematized in relation to the changing demands from the social and economic environment in which they operate. MST and RC claim to offer possible ways to tackle the problematic Mechanistic work organisation. Third, we describe the two approaches in a comparative way by focusing on the coordination of work and work-relationships. Finally, we introduce a research design that is based on the complementarity of both approaches that will be further developed and used in a research program on innovation projects in elderly care (Dessers & Van Hootegem, 2013). To conclude we sum up the key points of this paper with an indication of points that need further elaboration.

An open systems perspective on work organisation in and between organisations

We start with the framing of work organisation in and between organisations within an open systems theory perspective. This overarching framework allows us to define work organisation as a key concept in our exploration of the complementarity of MST and RC.

We assume that work organisation often transcends the boundaries of organisations especially but certainly not exclusively in elderly care (Van Hootegem, 2000, Fabbricotti, 2007). But before we explain our inter-organisational view on work organisation we begin by defining the concept of work organisation.

We will use the definition of work organisation that is advanced by Cordery & Parker (2007, p3): 'the way tasks are organized and coordinated within the context of an overarching work

system. A work system, in turn, may be viewed as a particular configuration of interacting subsystems, including work content, technology, employee capabilities (…)'. Cordery and Parker (2007) explicitly refer to the concepts of coordination and work content as integral parts of work organisation and we will use these concepts further in this paper in order to link MST and RC.

Now that we have defined work organisation in a larger systems approach we will briefly point out how work organisation is applicable in and between organisations, because our research in health care will focus on care processes that cross the boundaries of organisations. According to Sinha and Van de Ven (2005) two dimensions can be used to determine the boundary of a work system within and between organisations. These dimensions, a vertical and a horizontal one, are based on the concept of work division which can be defined as the way in which work is divided into work packages and how these work packages are allocated within and between organisations (Van Hootegem et al., 2008, Dessers, 2012). Work division is a central concept in MST and influences the quality of RC as we will demonstrate further in this paper.

Figure 1 shows that the vertical division of work can be used to show how responsibilities are allocated across hierarchical levels within units of an organization. The horizontal division of work can be used to illustrate in which way the activities of a work process are allocated across several organizational units of one or many organisations. The complex network problem that figure 1 shows, is caused by 'the interactions of vertical and horizontal division of work and responsibilities across hierarchical levels and units within and between organizations that represent the subsystems of a complex work system' (Sinha & Van de Ven, 2005 p391).

Figure 1. Vertical and horizontal division of work in and between organisations (Sinha & Van de Ven, 2005).
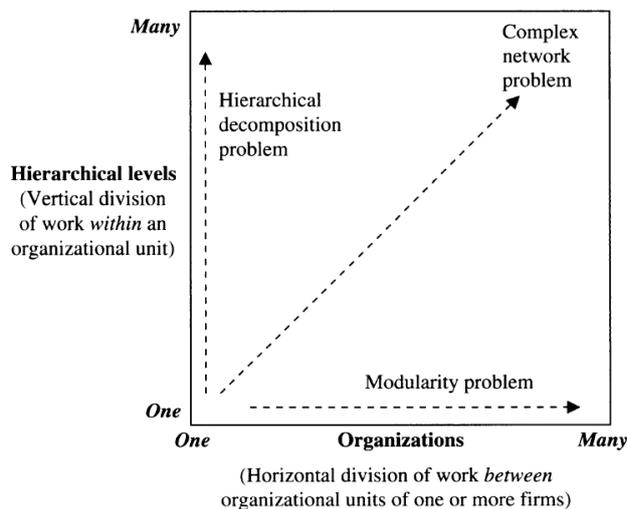
The network of interactions in and between organisations based on work division illustrates why we take an open systems theory perspective. The open character of any worksystem is caused by its interactions with its environment. Today and probably even more so in the future the environment in which most organisations operate can be characterised as volatile, uncertain, complex and ambiguous (Bennett & Lemoine, 2014). The environmental characteristics of organisations (with regard to labour market, technology, demographics etc.)

have changed since the late seventies of the past century and continue to change at an ever-increasing pace. This changing environment has put pressure on organisations in terms of combined demands of productivity, quality, flexibility, sustainability and innovation (Van Hootegem, 2008). The link between types of work organisation and its environment will be described in the next section.

To sum up this part in relation to the complementarity of MST and RC we emphasize that work organisation is the lens through which MST looks at work processes in and between organisations. The way work is organised strongly effects the enablement of RC although RC does not talk about work organisation as such, but uses the strongly correlated concept of high performance work systems which can be defined as 'practices that recognize and leverage employees' ability to create value' (Gittell et al., 2010). We will elaborate on this concept futher in this paper.

The Mechanistic work organisation in relation to the demands of its environment

Now that we have explained our open systems perspective on work organisation in and between organisations in relation to the environment in which they operate we will succinctly describe two archetypes of work systems based on the taxonomy of Beer et al (1985, p570)[1]: the Mechanistic and Concertive work systems. These two contrasting archetypes of work organisation will first be described in order to explain why we problematize the Mechanistic work organisation in relation to the demands of its environment as a major organisational problem for which MST and RC claim to offer possible ways to tackle it.

The Mechanistic work organisation is characterised by high levels of vertical and horizontal work division based upon Tayloristic principles of management (Taylor, 1911). 'Work activities are invariably organised with an individual rather than a group as the focus of task performance and accountability' (Cordery & Parker, 2007, p7). In a Mechanistic work organisation each of those care professionals is only responsible for, and specialised in, his or her own functional task(s). 'This function-based work division comes about when similar activities are grouped together in one organisational unit based on their input' (Dessers, 2012, p.38-39). This means that the whole work process has been cut into little pieces and functionally grouped together in units. The consequence is that the only way to coordinate these tasks is through hierarchical functions created to overview, control and align the functionally fragmented process. The coordination capacity is thus centralised and situated at a management level away from the work floor (Dessers, 2012).

For example if an elderly man needs care for his diabetes in a Mechanistic work system then he will have to see many different caregivers in order to receive the full spectre of care (tasks) that his health condition requires.

The Concertive work organisation can be differentiated from the dominant Tayloristic principles that are applied in the Mechanistic work system. The aim of the Concertive work system is similar to the high performance work system that enables RC: 'to put in place a pattern of working arrangements that maximises the likelihood of employees working in concert with each other, whilst expending high levels of effort in the effective pursuit of organizational goals' (Cordery & Parker, 2007, p10). In contrast to the Mechanistic work system it is characterised by work activities that are assigned to self-managed work teams

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[1] The taxonomy of Beer et al (1985, p570) consists of three main work systems: the mechanistic, the motivational and the concertive. But only the first and the latter are relevant for this papers purpose.

rather than individuals. Consequently another difference with the Mechanistic work organisation is that the responsibility of those self-managed teams 'is extended beyond the immediate production task to aspects of the management of the broader work role' (Cordery and Parker, 2007, p10).

In our previous example, the elderly man with diabetes will then be at the centre of attention of a multidisciplinary team which works together in function of the patient's needs, and not in function of their own specific fragmented tasks. This means that in our example the coordination of the multidisciplinary tasks would be decentralised and integrated in the operational work of the care professionals, which is similar to one of the MST principles as we will demonstrated further (Dessers, 2012).

In line with our open systems theory perspective on work organisation in relation to the demands of its environment, we use two criteria to assess the effectiveness of a work system advanced by Parker and Cordery[2] (2007, p7):

- 'its capability of effective adaptation to changes in the organisation's strategic direction (e.g. cost leadership vs innovation) and in operating environment (e.g. economic and labour market changes).
- its sustainability, in terms of its impact on the physical and psychological health of employees, the degree to which it builds positive social relationships, and effects a healthy work-life balance'.

The Mechanistic work organisation with its high levels of vertical and horizontal work division is by its nature not effective to adapt to changes in the environment, because it was developed by Taylor in a time when there was a need for mass production based on efficiency rules, standardisation and routine work processes. The detrimental impact of this work system on the health of employees working in it has been documented in the literature (Karasek, 1979, Marchand et al., 2005, Delarue, 2009).

The Concertive work organisation scores highly on the two criteria we just advanced because it takes the whole work system as the basic building block for work organisation instead of the fragmented tasks that resulted from a system of high work division.

The Concertive work organisation is based on the original work of sociotechnical systems theorists at the Tavistock Institute of Human Relations (Trist & Bamforth, 1951). This original work is the basis of the MST that was developed in the seventies and evolved in different ways in the Anglo-Saxon countries, Scandinavia, and the Lowlands (Van Eijnatten and De Sitter, 1995, p21). We will describe how MST evolved in the lowlands in the next section.

To sum up this part and to avoid misinterpretation of our key points we emphasize that in an open systems approach the changing characteristics of an organisation's larger strategic environment are in fact demands that must be met by the work organisation for the purpose of effectiveness and efficiency (Daft, 2001). Thus, the Mechanistic work organization is not always problematic from an organisational point of view in terms of scalability and efficiency if the environmental demands and the characteristics of the work processes are stable,

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[2] Parker & Cordery (2007) describe six main criteria from the literature to assess the effectiveness of work systems but that would take us to far for from the central goal of this paper.

predictable and not complex. But even then the negative impact of this rigid work organisation on the wellbeing of employees and their work relationships still remains problematic.

A Modern Sociotechnical System Theory view on changing demands of the environment

We will now describe how MST views work organisation in relation to the demands of its environment. By organising work in relation to its environmental demands MST aims at enhancing simultaneously organisational results and the quality of work for the employees. In the following section we will focus on a potential gap within the MST theory, and explore whether the possible complementarity with RC could offer ways to fill this gap.

MST is a theory about work organisation, which conceptualises an organisation as a social structure of relationships between workplaces. This integral structure must be aligned in function of the environmental characteristics in which the organisation is trying to realize its goals (De Sitter, 1997; Kuipers et al., 2010). The theoretical foundation for this MST-way of looking at organizations is founded in Luhmans social system theory and developed in the Lowlands 1970's by De Sitter, Christis and their fellow Dutch scientists in the eighties and nineties.

As mentioned above the design of a work organisation implies work division. The MST states that this work division results in a production structure and a control structure (De Sitter, 1997; Dessers, 2012). The production structure consists of the work division decisions concerning the activities that are necessary to deliver a product or service to a client. The control structure is about coordination of these divided work packages (Van Hootegem, 2000).

The MST uses two organising principles for understanding the production and control structures of work organisation. The first principle is based on Ashby 's law of the requisite variety which states that 'the variety of control mechanisms must be greater than or equal to the variety of interferences' (Ashby, 1957; Dessers, 2012, p.41). In other words, the design of a work organisation must allow to adapt itself to the complexity of its environment.

The second principle is that a control structure needs to be designed according to the decentralization rule of MST (Van Hootegem, 2008), which states that, unless strong reasons exists for centralisation, decisions can best be taken at the level of the teambased workplaces. This decentralization rule is in line with the theoretical insights offered by Karasek's Job Demand-Control model (Karasek, 1979). Karasek's work shows that a work organisation in which the job control characteristics of workplaces are in balance with the job demands, can be related to higher levels of learning and lower levels of work related stress.

Job control characteristics, within an MST view, are predominantly dependent on the job content which is itself determined by the design of the production and control structures. MST's strong focus on job content as constitutive for job quality might have led to a lack of attention for the human relations aspects of job quality. De Spiegelaere et al. (2013) studied the importance of social relationships in terms of job quality in relation to work engagement. Their research supports our hypothesis that work relationships may play a more significant role than has been assumed so far in MST literature. This hypothesis is in line with Karasek's and Theorell's (1990) expanded Job-Demand-Control model, in which they include social support from co-workers. The resulting Job Demands-Control-Support model was based on

research (e.g. Johnson & Hall, 1988) that showed that social support might be an important resource for employees to learn and help solve problems, and adapt to changes that occur in their workplace. We have also demonstrated the importance of social support in the description of the concertive work system.

Linking Relational Coordination and the Modern Sociotechnical System theory

As mentioned before we will now point out a research gap within the MST literature on work relationships in general and more specifically between formal and informal care-givers within the framework of our research in healthcare innovations projects in the next section (Dessers & Van Hootegem, 2013). We will advance RC in this section as a complementary theory to help bridge this gap in MST about work relationships.

The literature on the MST of the Lowlands states the importance of work relationships as a constitutive part of the social structure of any organisation (De Sitter, 1982, Kuipers et al., 2010). As we have explained this social structure consists of a network of workplaces that is the result of the specific choices about work division and the allocation of people to those teambased workplaces regardless of the specific individual (Van Hootegem, 2000, 2008, Dessers, 2012). The coordination of the interactions in and between those teambased workplaces is not linked to work relationships within the MST framework. On the contrary, because of the strong focus on work content in terms of job controls and demands and the decentralisation rule in the control structure, coordination should be enabled by the work organisation design itself which on its turn should be in line with the characteristics of its environment and its core work processes.

Within an MST perspective Van Kollenburg (2003) indicates that when the MST was originally developed it considered an organization as a social structure with an informal and a formal component. But in the process of developing it further the technical aspects of designing and the formal structures got the most attention in detriment of the informal structure which led to a limited development of the quality of work relationships.

Almekinders (2006) points out that MST expects that strong work relations should be enabled by the work organisation, but that team development and teamdynamics will be required to obtain the desired team-behaviour because teams can bring about the best in people or the worse. He also points out that work relations as a concept is been used in multiple ways within an MST perspective (e.g. industrial relations between employer and employees, the relations between teams or within teams) and that its object depends on the research focus that is chosen (Christis & Korver, 1992). It appears that the development of work relationships has not been a constitutive part of MST.

Another indication of little attention for work relationships in the MST is pointed out by Delarue (2009). She states that the MST is strong in designing social structures that can enable desired behavior (like mutual respect and building relationships on trust) but that it assumes to easily that such behavior will occur given the right conditions.

Next we describe the RC approach Relational coordination (RC) theory does acknowledge the primordial importance of work organisation, but argues that coordination might not just be about structuring tasks in such a way that it enables behaviour. Coordination is also about the relational process of interdependencies between the people who perform these tasks. It should be noted that the main unit of analysis in relational coordination is not the individual

employee, but the role-based relationship. The RC approach regards relationships as 'being essential for creating collective identity in an organization and for enabling work to be coordinated effectively (…) by focusing on relationships between roles rather than between specific people' (Gittell, 2009 p.19). Most importantly, these relationships are characterized by shared goals, shared knowledge and mutual respect that foster communication which is characterized as frequent, timely, accurate and problem-solving.

According to Gittell (2003), the different role-embedded relationships must be founded in what she calls a high performance work system. This work system consists of mutually reinforcing work practices that foster optimal conditions to execute an RC approach. These work practices are described as 'distinct from traditional bureaucratic practices because they serve to overcome rather than reinforce the silos by connecting workers directly with one another' (Gittell, 2009 p.52). As was mentioned in the first section of this paper these high performance work practices share many similarities with the Concertive work system as an alternative to the dominant Tayloristic structure of work division. Together these work practices may lead to quality and efficiency performance and job satisfaction as shown in figure 2.

Figure 2. Model of Relational Coordination (Gittell, 2009).
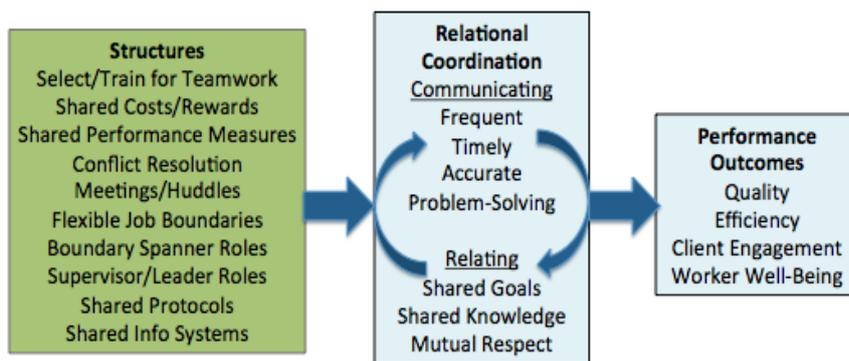
The RC's theoretical foundations are based on the work of several researchers that have identified 'high performance work systems' that enable strong work relationships (Evans & Davis, 2005). Evans and Davis (2005, p.759) define these 'high performance work systems' as follows: 'an integrated system of HR practices that are internally consistent (alignment among HR practices) and externally consistent (alignment with organizational strategy) that include decentralized decision making, extensive training, flexible job assignments'. in line with this definition Gittell (2003, 2009) states that such practices must be linked and synergistically developed to foster optimal conditions for RC application. The strength of these work practices could be that they originate from different theoretical frameworks. But this could also prove to be a weakness, since it could be argued that the RC and its enabling high performance work systems might lack a consistent theoretical foundation to design work organization.

In summary, we propose that the MST approach might benefit from an additional focus on role based relationships. At the same time, we hypothesise that MST might offer RC a comprehensive theoretical framework for understanding and developing high performance work systems.

Combining the two complementary approaches in research on innovation projects

As mentioned above the exploration of possible theoretical complementarity between MST and RC will be put to the test in a living lab research project on elderly care in Flanders (Belgium) (Dessers & Van Hootegem, 2013). More specifically, we use this theoretical complementarity to conduct research on how formal and informal care providers can collaborate more effectively while at the same time enhancing the quality of their work and work relations.

The living lab projects will be studied from an inter-organizational perspective. The reason for this is that the innovations are always implemented by multiple organization. The aim is to improve care processes that cut across boundaries of organisations and individual caregivers. This inter-organisational characteristic underlines the need for collaboration and coordination across and within care organisations.

We now present the main research questions, the conceptual model (figure 1) and the propositions, although it should be noted that this is a work in progress that needs further elaboration.

<u>**Research questions, conceptual model and propositions**</u>

1. What is the relation between the work division structure of inter-organisational care processes and
    a. the level of innovation capacity of the involved organisations?
    b. the level of job quality of the caregivers in inter-organisational care processes?
    c. the level of care quality?
2. And to which extent does the level of relational coordination play an intermediate role on
    a. the level of innovation capacity of the involved organisations?
    b. the level of job quality of the caregivers in inter-organisational care processes?
    c. the level of care quality?
3. What is the relation between job quality and
    a. the level of innovation capacity of the involved organisations?
    b. the level of care quality?
    c. the level of relational coordination of the caregivers in inter-organisational care processes?

Figure 1. Conceptual model
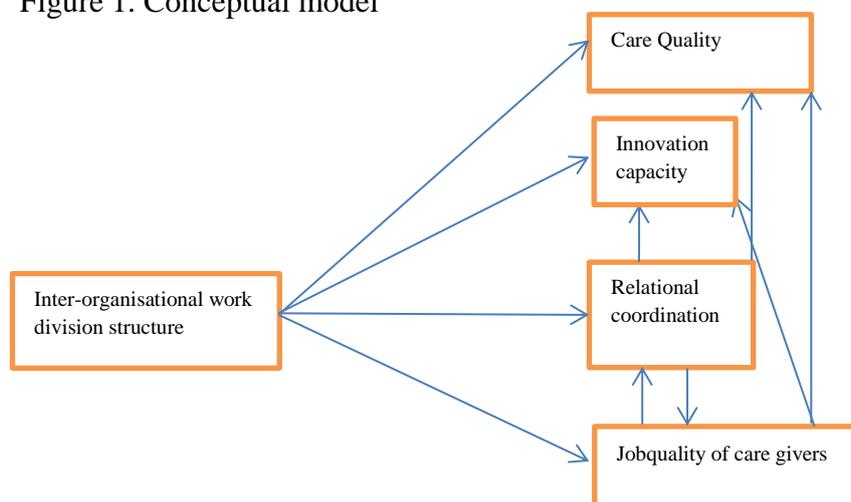
<u>Propositions</u>

Given the level of complexity and dynamism of the current social environment:

1. A less fragmented work division and a more de-centralised coordination will contribute to higher innovation capacity of the involved organisations.
2. A less fragmented work division and a more de-centralised coordination will contribute to higher job quality for care-givers.
3. A less fragmented work division and a more de-centralised coordination will contribute to higher levels of care quality.
4. A less fragmented work division and a more de-centralised coordination will contribute to higher relational coordination.
5. High relational coordination will contribute to higher levels of innovation capacity of the involved organisations.
6. High relational coordination will contribute to higher levels of job quality for care-givers in inter-organisational care processes.
7. High relational coordination will contribute to higher levels of care quality
8. High job quality will contribute to higher levels of innovation capacity of the involved organisations.
9. High job quality will contribute to higher levels of care quality.
10. High job quality will contribute to higher levels relational coordination.

Discussion and conclusion

The aim of this paper was to explore why and how RC could be complementary to MST theory in relation our research in healthcare. We described the common challenge which both organisational approaches are concerned with, with regard to the dominant Mechanistic work organisation and its possible dysfunctions. We then focused on the complementarity of the two theories by using the concept of coordination and work relationships. We provisionally concluded that there could be many possibilities for complementarity that go both ways: RC could benefit from the strong theoretical framework of the MST approach. MST could benefit from the RC focus on strong role-based relationships in function of the coordination of work and job quality.

To end this paper we sum up some shortcomings that need to be addressed. An extensive literature review will be needed in order to better understand the theoretical frameworks that underpin the RC and MST approaches. Furthermore, the concept of coordination, which takes a central place in both MST and RC, was given little attention in this paper. We will need to elaborate on this important building block.

Acknowledgements

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