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## Practice-based innovation: a learning perspective

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### Abstract

**Purpose** – The purpose of this paper is to explore the idea of practice-based innovation and to propose a framework that can be used to conceptualize and analyze practice-based innovation processes in organizations.

**Design/methodology/approach** – The argument is driven by conceptual analysis and theoretical synthesis based on theory and research on innovation, organizational change, individual- and organizational learning.

**Findings** - The proposed framework portrays practice-based innovation as a cyclical process of adaptive and developmental learning driven by contradictions and tensions between explicit and implicit dimensions of work processes.

**Originality/value** – The paper adds to previous research through its focus on practice-based innovation and the conceptualization of this notion in terms of learning in and through everyday work. It thus creates connections between innovation research and research on workplace learning.

**Keywords:** practice-based innovation, workplace learning, adaptive learning, developmental learning, organizational change.

**Paper type:** Research paper.

## 1. Introduction

In recent years, there has been a broadening of the view of the interplay between knowledge formation and innovations. While previously innovations were seen primarily as a function of investments in R&D and the dissemination of research-based knowledge, innovations are today also viewed as a function of the learning and knowledge creation that takes place in the production of goods and services in organizations (e.g. Edqvist, 2005; Lam, 2005; Lorenz and Lundvall, 2006; Lundvall and Nielsen, 1999). An important implication of this broader view is the need to consider the workplace as a site for learning and not only as a production site.

Although learning in this way has become a key concept in research on innovations and innovation processes, this research can be criticised for its lack of a problematisation of the learning concept(s) used – the term learning has largely become a ‘black box’ (Miettinen, 2002). Innovation research has also mainly focused on formal learning rather than informal learning and on the supply side – the education system – rather than the demand side, i.e. the companies and organizations where the knowledge is to be used, but where knowledge and expertise are also developed as a result of the employees’ learning in the course of their everyday work. In addition, there is often a far too narrow interpretation of the learning concept that focuses on the subjective side of learning and knowledge, and a correspondingly weaker focus on the fact that learning may also produce objective results in the form of new ideas, knowledge or models that can be articulated and codified (e.g. Zollo and Winter, 2002).

How, then, can a workplace be understood as a site for learning and innovation? What is the role of learning in innovation processes? The purpose of this paper is to approach these questions by proposing a framework that can be used to conceptualize and analyze practice-based innovation processes in organizations. In using the notion of practice-based innovation, I am suggesting a concept that aims to reflect the broader view of the relations between innovation and learning indicated above. As used here, practice-based innovation refers to the employees’ or the managements’ renewal of their own operations in some respect – for example by the development and use of new working methods, routines, products or services – where this renewal is based on learning in and through work processes within the operations concerned. Thus, this definition focuses on workplace learning as a fundamental mechanism behind practice-based innovation processes.

It is necessary to make two other points clear from the start. The basis for the discussion in this paper is intra- rather than inter-organizational, in the sense that the focus is largely on the workplace. This focus may be seen as a limitation given the emphasis on networks and learning in interplay with other organizations that often forms part of an innovation system approach (Edqvist, 1997; Lundvall, 1992). However, this seems to be mainly the case with regard to so-called product innovations, i.e. innovations relating to goods and/or services (see section 2 below). The main focus in this paper is instead on process innovations, i.e. innovations that relate to production processes, working methods and work organization. As argued by Hommen (2000), process innovations stem from intra-organizational learning processes to a greater degree than product innovations. However, the interplay between, and the relative importance of, intra- and inter-organizational learning processes lie outside the scope of this paper. Furthermore, this paper has its focus on innovation processes, i.e. processes that result in an innovation, rather than on the innovation itself.

## 2. Innovations and innovation processes

What is meant by the concept of innovation as used here? Central to many definitions of this concept are the criteria that an innovation relates to some form of specific change that is new (at least locally) and that leads to what is in some sense a better accomplishment of goals at the system level (the local unit or the larger organization/system of which it is a part). The goals do not necessarily have to be financial or production-oriented in nature but may relate to other values that we want to achieve by means of certain operations, for example meeting the needs for healthcare, care or education. These or similar criteria recur in both earlier and more recent definitions. An early example is the definition proposed by the educational researcher Matthew Miles (1964). According to this definition, an innovation is:

"A deliberate, novel, specific change, which is thought to be more efficacious in accomplishing the goals of a system." (Miles, 1964; p. 14).

This definition, which was proposed more than forty years ago, seems in many ways still relevant today. Let us first consider the requirement of novelty. This gives rise to the classic question: new for who? Do we mean new for the user in a local context, new for a certain industry or sector, or new for the world? It appears to be quite common in the field of innovation research to accept a 'low innovation ceiling', i.e. to accept something as an innovation if it is perceived as new in the local context in which it is developed or implemented, even though its novelty may be more limited in a wider context (Miles, 1964; Pettigrew and Fenton, 2000). However, such 'local innovations' are not mechanical applications or simple copies of a more general idea or innovation. In fact, it is difficult to draw a clear line between imitation and innovation. What may appear to be an imitation often entails a reinterpretation or new interpretation involving more or less innovative elements (Sevón, 1996). This is in line with the view that innovations are based on new combinations of elements that are already well known, and perhaps also applied, but that have not previously been linked together – at least not in the local context (Pettigrew and Fenton, 2000; Schumpeter, 1980).

This latter argument leads us to the distinction between gradual (incremental) and radical innovations (Edquist, Hommen and McKelvey, 2001). In the former case, the focus is on changes that entail refinements or improvements, although without accomplishing anything that is completely and fundamentally new. In the case of radical innovations, the focus is instead on changes that represents something totally 'new' and that thus also entails a break with established views, knowledge or technology.

According to many definitions, there is also the requirement that before something is accepted as an innovation it must be possible to demonstrate that it contributes to the accomplishment of the goals of an organization (or system). This requirement is reasonable in the later stages of an innovation process, but hardly in the early stages. One way of handling this is to differentiate between potential and actual innovations. A *potential innovation* entails a proposed change that is in some sense new. However, it has not yet been demonstrated that this change will be able to contribute to the accomplishment of the goals of the system (or be of importance to a group or operation in some other way), and it cannot therefore be legitimised in terms of results or its importance to others. An *actual innovation* is an innovation whose importance (as a contribution to goal accomplishment or in some other way) it has been possible to demonstrate, or which has for other reasons achieved a certain degree of acceptance and legitimacy and, as a consequence, a certain degree of dissemination and use. Thus, what constitutes an actual innovation – rather than a creative idea, invention or discovery – can only be determined on the basis of its practical application and use.

So far, we have discussed innovations as changes in quite general terms. In the definition by Miles (1964) cited above, innovations can relate to more or less any aspect of an operation. But what type of changes are we talking about more specifically? An often used framework is based on the distinction between product and process innovations (Edquist, Hommen and McKelvey, 2001). While product innovations relate to new goods or services, process innovations relate to new ways of producing existing goods and services. The process innovations category may in turn be divided into technical and organizational innovations. Technical process innovations include new material goods (e.g. machinery, IT equipment) that come into use in a certain production process. Organizational process innovations relate instead to new ways of organizing a certain work process (e.g. a new work organization or a new working method). Although this division is not precise and, as pointed out by Edquist, Hommen and McKelvey (2001) is far from unequivocal, it is usable in many contexts. When we speak about innovations below, our focus, in terms of this division, is on process innovations rather than product innovations, and on organizational rather than technical process innovations.

### 3. Two dimensions of work processes

The concept of work process is central to the discussion in this paper. As defined here, it comes close to the concept of routine as used in organizational theory (e.g. Feldman, 2000; Feldman and Pentland, 2003; Miner, 1991). In general terms (to be elaborated below), a work process is defined as: a set of recurrent actions that are performed – with or without the help of tools or machines – to handle a certain task and thus to achieve a certain result. The task may of course relate to a number of different types of work objects ranging from abstract symbol systems to various types of material objects or technical systems or, for example, to other people who are to be educated or cared for. Let us take as an example organized care services for elderly people. In order to perform this task with good results for the clients (the elderly), a number of healthcare and care activities are conducted by the care workers, for example, administering medicine, helping with personal hygiene, cleaning and so on (Ellström, Ekholm & Ellström, 2008). This example underlines two other important aspects of a work process: it comprises a pattern of interdependent actions and it involves a number of actors (cf. Feldman and Pentland, 2003).

From these starting points we can now differentiate between two dimensions of a work process: the *explicit* and the *implicit* dimension. The explicit dimension concerns how the work process is formally codified, prescribed and organised (e.g. in written instructions). The implicit dimension concerns how the work process is perceived by different actors, coordinated and performed in practice. This distinction is in many respects related to the distinction made by Feldman and Pentland (2003), based on Latour (1986), between the ostensive aspect and the performative aspect of an organizational routine. Connecting to research on organizational learning, the distinction proposed here is also in certain respects parallel to Argyris and Schön's (1978) well-known distinction between 'the espoused theory' and 'the theory in use'. Another related distinction is that made by Brown and Duguid (1991) between the prescribed practice of doing something – the canonical practice – versus how the work is actually performed – the non-canonical practice. Like these distinctions, the distinction made here is ideal typical in character. In the everyday work in an organization, the explicit and the implicit dimension are interwoven and both are necessary to constitute a work process. However, in practice it is common to overestimate the importance and impact of the formally prescribed work process (the explicit dimension), while the actual performance of a task (the implicit dimension) is not made visible and given recognition (cf. Brown and

Duguid, 1991; Feldman and Pentland, 2003). Below, we will examine more closely the meaning of the two dimensions of work and how they are assumed to be related to each other.

### *The explicit work process*

This dimension concerns the formal, officially prescribed work process as it is expressed, for example, in job descriptions, standards or policy documents, i.e. the work process as an abstract idea (an ‘espoused theory’ in the terminology of Argyris and Schön, 1978). The explicit dimension is therefore also a part of the formal structure of the organization. The explicit work process is more or less strongly based on codified knowledge concerning what should be done, and how, in order to complete a certain task successfully, and it can therefore be seen as an expression of – at a specific point in time – prevailing notions, ideas, and available research-based knowledge within a certain field of practice. The work process is consequently often described in rational terms with an emphasis on goal-oriented, technical-instrumental action on the basis of conscious planning and calculated strategies (Brown and Duguid, 1991). The prescribed work process may be more or less detailed and explicit in terms of what should be achieved (goals) and how (methods), and thus provide varying degrees of autonomy (degrees of freedom) in terms of performance.

One way of understanding the creation of an explicit work process is to view it as a result of collective, experience-based learning (Barley and Tolbert, 1997), in the sense that job descriptions and prescribed procedures can be seen as experience-based modifications and further developments of procedures that applied earlier. It is of course reasonable to assume that such processes of learning are constrained or enabled by (micro-)political and institutional factors. The learning process is likely to be the result of complex interactions between organizational actors representing different ideas and interests. In line with a neo-institutional perspective, this process is also likely to be exposed to pressures from different – and maybe contradictory – institutional environments to adopt ‘new’ ideas, standards, routines or solutions (Brunsson and Jacobsson, 2000; Czarniawska and Sevón, 1996; Meyer and Rowan, 1977). This is assumed to take place not least in order to gain and maintain acceptance and legitimacy for changes in the formal structure. Of course, interactions between a number of different actors also mean that there will be multiple interpretations of the formal prescriptions and instructions, and that one should expect more or less open conflicts and negotiations between the actors involved (Feldman and Pentland, 2003).

### *The implicit work process*

This dimension concerns how a work process is perceived and performed in practice, in contrast to how it is intended to be performed according to official standards, policies etc. It refers to specific thoughts and actions carried out by specific people, in specific places and at specific times (Feldman and Pentland, 2003). This comprises partly a subjective aspect, i.e. how the work process is perceived, interpreted and understood by different actors, and partly an action aspect (Hackman, 1969). Both of these aspects are likely to vary depending on contextual and individual factors. The latter include, for example, individual background factors, knowledge, values, attitudes to work, emotional and personality-related factors. The contextual factors are linked to working conditions in a broad sense and the way in which these conditions constrain and enable individual and collective actions. Of course, the implicit work process is also to a large extent an outcome of the scope of action available to different actors, which in turn is related to the actors’ position and role in the organization and, thereby, to their authority and power.

If we examine the relations between the explicit and the implicit work processes there are often, as revealed by previous research, significant differences between how an operation appears from the point of view of these two dimensions (Brunsson and Jacobsson, 2000; Meyer and Rowan, 1977). The implicit work process, i.e. how the work process/task is perceived and performed, has a relative autonomy in relation to formal structures and prescribed processes and tasks (Bourdieu, 1990). This relative autonomy is expressed in the form of improvisations and deviations in relation to the formally prescribed performance of a certain task. Prescribed tasks and processes may be forgotten or are reinterpreted more or less consciously. There is often a considerable variation – between different performers of the same task – but also in the way the task is carried out by the same actor over time. Furthermore, there is typically a considerable creativity and an ability to improvise when it comes to finding solutions to unexpected problems that arise (Brown and Duguid, 1991; Feldman and Pentland, 2003; Miner et al, 2001). However, a number of studies show that this creativity mainly occurs unofficially and implicitly – as a part of what happens ‘behind the scenes’ – and it is therefore not highlighted or paid attention to in official job descriptions, i.e. in what has here been called the explicit dimension (Barley and Kunda, 2001; Ellström, 2006 b; Gustavsson, 2007; Hirschhorn, 1984).

#### 4. Practice-based innovation as a cyclical process of learning

A basic assumption made here is that the interface and the interplay between the explicit and implicit dimensions of work may be driving forces for learning and innovation processes. The underlying idea is that tensions and contradictions between work processes as officially prescribed (the explicit dimension) and as perceived and performed in practice (the implicit dimension) create potentials for learning and practice-based innovations in an organization.

In order to explore this assumption it is necessary to examine the interplay between the explicit and implicit dimensions of work more closely. With theoretical inspiration from, in particular, research on organizational learning (e.g. March, 1991), critical realist theory on social change, structure and agency (e.g. Archer, 1995) and evolutionary theory of knowledge creation (e.g. Campbell, 1960), the interplay between the two dimensions can be portrayed as a cyclical process of reproduction and transformation. These two processes are interpreted and modelled in terms of two complementary organizational logics called: the logic of production and the logic of development that will be discussed below (cf. Ellström, 2006 b). The distinction between these two logics is made here on analytical grounds. In practice, however, the two logics are more or less integrated and can, as is illustrated in Figure 1 below, be seen as complementary aspects of an innovation process.

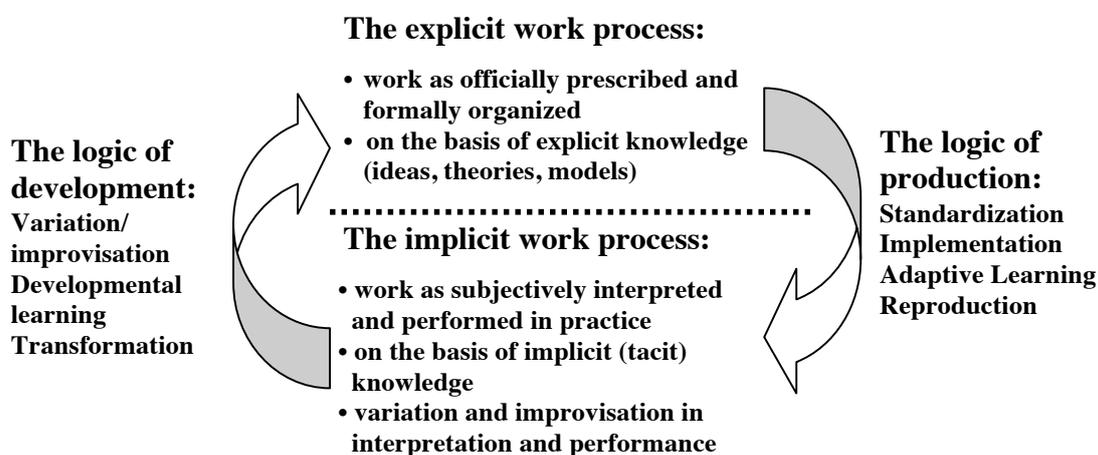


Figure 1. Practice-based innovation as a cyclical process of learning

Now, considering a complete cycle of learning and innovation as illustrated in Figure 1, it may, in idealized terms, start with the implementation and mastery of a certain procedure or task in accordance with the logic of production, continue with a more or less routinized performance of this procedure/task for some time, interrupted by disturbances or problems that trigger questioning, unlearning (Hedberg, 1981), and eventually the development of new ways of understanding and handling the task or problem at hand.

### *The logic of production*

This logic focuses on how the explicit work process is reproduced and realized in actual practice. Thus, it covers activities that aim to implement and maintain the officially prescribed work processes/tasks in practical action, i.e. to realise the ideas and expectations that lie behind the explicit dimension of a work process. In line with this orientation, the logic of production puts a strong emphasis on goal consensus, standardization, stability and the avoidance of uncertainty. In several respects, this logic comes close to what March (1991) refers to as processes of exploitation in organizational learning, characterized by a focus on refinement, production, efficiency, and execution. However, there are also strong affinities with Tayloristic principles of production (Braverman, 1974), and at a more abstract level also with the principle of performativity as proclaimed by Lyotard (1984).

The move from an abstract idea to practical action is understood here as a process of adaptive or reproductive learning (Ellström, 2001; 2006 a). In general terms, this mode of learning has a focus on establishing and maintaining well learned and routinized action patterns. Instances of adaptive learning are easy to find in working life, including for example the mastering of new tasks or situations, or learning to follow certain instructions. Adaptive learning is central also to the socialisation of individuals to an organization. The focus then concerns to what extent the people in an organization are acquiring ‘the code’, and thus learning how one ‘should’ or ‘must’ think and act in different situations.

A basic condition of adaptive (reproductive) learning is to reduce variation – within and between individuals – regarding the perception and performance of a task. In line with this, the decisive criterion for successful adaptive learning is that the task concerned can be performed rapidly and with a low percentage of error (Argote, 1999; Argyris and Schön, 1978; March, 1991). In practice, measures to reduce variation in the performance of a task may include formalization through written rules and instructions, limited autonomy and the formulation of clearly specified tasks and goals.

Adaptive learning (like other forms of learning) does not take place easily, however. The literature is full of examples of cases where the implementation of prescribed working methods, procedures or policies has ‘failed’ (implementation failures). At the same time, what on the surface appears to be a ‘successful’ implementation may, on closer examination, prove to be a ‘pro forma’ adaptation to stipulated work processes, i.e. learning has taken place in the sense that people have picked up the prescribed way of perceiving and speaking (rhetorical learning), but they have not appropriated the prescribed work process in practice (Wertsch, 1998).

One way of interpreting this kind of ‘learning failure’ is as a form of resistance and as an expression of conflicts of interest between, for example, managers and employees. Thus, a ‘failure’ of implementation and adaptive learning from a management perspective might be understood as a ‘success’ from an employee perspective (e.g. it may mean a gain in autonomy or reduced work intensity). This example illustrates how issues of learning and, in this case, implementation are closely interwoven with issues about perspectives and interests in an organization. The example also mirrors an inbuilt duality in the concept of adaptive learning.

In one sense adaptive learning is about learning to handle certain tasks or to master the norms, practices and routines in an organization. In another sense adaptive learning is about the learning and reproduction of a prescribed order (e.g. a new policy or procedure) and, thereby, a mechanism of power and managerial control.

### *The logic of development*

Similar to what March (1991) refers to as processes of exploration, the logic of development has a focus on practice as a source of new thinking and knowledge development, for example on promoting renewal in ways of defining and carrying out an activity. It is assumed that this renewal will be based on the variation that always exists in the performance of work, i.e. in the implicit dimension of a work process. It is further assumed that this variation may lead to discoveries, ideas and new actions that under certain conditions can transform the work process as expressed in the organization's formal structure (the explicit work process) and, at a later stage, also in how the work process is performed in practice.

In terms of learning, this logic presupposes what I elsewhere have called developmental learning (Ellström, 2001; 2006 a; b). This means that there is a strong emphasis on the subjects' capacity for self-management and their preparedness to question, reflect upon and, if necessary, transform established practices in the organization into new solutions or ways of working (cf. Dewey, 1933; Engeström, 1999). The logic of development, interpreted thus, entails action and learning that calls for risk-taking and a capacity for critical reflection, together with sufficient scope and resources for experimenting with and testing alternative ways of acting in different situations. In this view, conflicts and ambiguity are not potential threats to learning or to efficient performance, but rather potentials for triggering developmental learning processes. Contrary to the logic of production, the logic of development has a focus not on reducing variation and attaining homogeneity, but, rather, a focus on exploring variation and diversity in thought and action. Thus, variation in the understanding of problems and their solution is assumed to create scope for innovative recombinations (cf. Campbell, 1960; Schumpeter, 1980).

The distinction made here between the two organizational logics of production and development entails a distinction between adaptive and developmental learning. However, as argued elsewhere (Ellström, 2006 b), drawing a strict line of demarcation between these two modes of learning is neither possible nor desirable. The routinization of action through adaptive learning is an important way to learn to handle the daily flow of events, problem situations and contradictory demands, and at the same time maintain a feeling of security and stability (Klein et al, 1993). The problem, however, is that excessive routinization tends to place blinkers on us, which may impede our ability to identify and manage change. We may reinterpret and, by the same token, ignore or misinterpret changes in our surroundings, so as to maintain stability (Gersick and Hackman, 1990). At the same time, routinized action can relieve the cognitive load on individuals and free mental resources for other purposes. In this sense, routinization can be viewed as a precondition for generating the freedom and variation of action that we associate with creativity and developmental learning. Thus, adaptive and developmental learning are in this respect as well as in some other respects complementary.

### *Driving forces and barriers for practice-based innovations*

What, then, are the driving forces for breaking with the 'status quo' and the maintenance of established working methods (routines), and thereby to challenge the security that follows with well-learned, routinized actions. It often seems that it is only in the face of a new, perhaps crisis situation or turning point that we begin to question and become ready to change

established patterns of thought and action (Barley and Tolbert, 1997). Previous research indicates a number of such possible turning points (Gersick and Hackman, 1990), for example when individuals, groups or organizations are faced with a situation that they have never met before. There are also a number of other factors that may lead us to abandon a routine. An established working method may lead to a failure in some respect. It may also be that we reach a natural turning point, a milestone, or that we are met by demands for changes. Examples of such demands would include rapid technical development, increased quality requirements, or changing demands from customers or clients, colleagues or management (e.g. Lundvall and Nielsen, 1999).

At the same time, it seems to be the case that a strong transformation pressure may be a necessary, but hardly a sufficient, precondition for departing from established routines and for the initiation of developmental learning. Changes that are either too big or too small both tend, for different reasons, to result in avoidance. It is, for example, a well-known phenomenon that in crises or situations we perceive as threatening we tend to fall back on habitual routines. Evidently, it is often not enough to see learning and change as a result of a 'departure' from habitual patterns of thought and action. Various types of support and resources for learning are also required (Ellström, 2006 b; Svensson and Nilsson, 2008).

As shown by Miner, Bassoff and Moorman (2001), a variation in the performance of a work process may be planned or unplanned. In both cases, this variation can create potentials for developmental learning (Ellström, 2001; Gustavsson, 2007). In the former case, there are potentials for experimental learning where we can 'off-line' study the variations that occur in the performance of a work process and investigate the consequences of different working methods (action alternatives). In the latter case, there are potentials for learning based on improvisations ('improvisational learning') to handle unexpected problems and events, or for learning by means of 'spontaneous experiments'. A common feature of the three forms of learning identified by Miner, Bassoff and Moorman (2001) is that they are based on the discovery and development of new action alternatives stemming from an exploration of the variation that arises in the performance of a work process.

A developmental learning process can be viewed over shorter or longer periods of time. It may be a question of immediate improvisation or of a more extended process in which various action alternatives are developed and tested. The learning process may be more or less conscious and planned. Rapid improvisation often takes place in an unplanned and ad hoc way, while experimental learning entails and presupposes planning. As shown by Miner, Bassoff and Moorman (2001) the results of improvisations or other forms of developmental learning 'on-line' are often forgotten and thus leave no identifiable traces in the ongoing operations. This may of course be because the solutions found were deficient and deserved to be forgotten, but it may also apply to solutions that were in some sense successful and that therefore deserved not only to survive in the operations concerned but also to become established and be disseminated within and outside these operations.

In relation to this type of what we might call incomplete innovation processes there are a number of different barriers that may block progress towards a more complete learning and innovation process. These barriers can be related to subjective factors (e.g. competence, identity, self-confidence), organizational processes (e.g. participation, leadership, power, authority), cultural factors (e.g. openness, trust) or structural conditions (e.g. the division of labour, reward and remuneration systems) (Ellström, 2006 b; Nordhaug, 1994).

### *Practice-based innovation – a balancing act between two organizational logics*

The model proposed above and illustrated in Figure 1 is primarily intended to be used as a tool for describing and analyzing learning and innovation processes in organizations rather

than as a normative model. Of course, this distinction is far from easy to make. Most analytical models can have normative implications, while most normative models can be used as a starting point for analysis. In fact, there are a number of normative models of learning and innovation processes that have also been used for analytical purposes (e.g. Dewey, 1933; Engeström, 1999; Weick and Quinn, 1999).

According to these models, as well as the model presented above, the learning and innovation process begins with questioning, a disturbance or the emergence of a problematic situation in the conduct of a task or in the interplay with other people. This leads to routinized patterns of thought and action being broken and a search for new ways of dealing with the disturbance or the problematic situation at hand. As argued by Lam (2005), innovations may be viewed as the result of learning and knowledge creation through which new problems are defined and new knowledge is developed to solve them. A similar view of innovations follows from the variation–selection–retention model (Campbell, 1960) as applied by, for example, Zollo and Winter (2002). In line with this latter view, variation in ideas or solutions for defining and handling problems is considered here as a key factor for promoting developmental learning and practice-based innovations.

Variation in the conduct of work is assumed to occur not least because the implementation (and reproduction) of the formal, explicit work process is always and necessarily (more or less) incomplete (Feldman and Pentland, 2003). Other possible sources of variation in carrying out a task may be that the work process and its contextual conditions are perceived and understood differently by the same individual over time, by different individuals at the same time, or that the contextual conditions under which the work process is performed change over time and thus require a changed and varied performance. As argued by Norros (1995), deviations or disturbances in a work process represent opportunities for the redesign and thus renewal of the process as originally designed and implemented. Thus, incomplete implementation of a work process as formally prescribed creates scope for autonomy and variation and, thereby, also for developmental learning and renewal.

Empirical support for this idea is provided in a study of learning in project groups by McGrath (2001). This study included measures of the project groups' autonomy in relation to work performance. As indicated by the results, a high degree of autonomy is likely to promote developmental (exploratory) learning. However, the degree of autonomy in performing a task is a necessary but not sufficient precondition for developmental learning. In addition, as discussed extensively elsewhere (e.g. Ellström, 2001; 2006 b), individuals or groups must have the subjective capacity required to make use of the autonomy afforded by their jobs. This in turn is related to, for example, previous experience with similar tasks, the individual's knowledge and understanding of the task at hand, self-confidence and occupational identity. As an umbrella term, these factors may be referred to as subjective learning resources (Ellström, 2001).

An important implication of this is the need to balance the logic of production with its focus on reproduction and reduction of variation and the logic of development with its emphasis on variation and transformation. The interplay between and the relative strength of the two logics in the daily flow of practice are assumed to determine the available scope for both adaptive and developmental learning. Thus, depending on how we, intendedly or unintendedly, shape the workplace as a learning environment we are likely to affect the scope for practice-based innovations. A too strong emphasis on the logic of production means that issues of implementation, routinization and efficiency are likely to predominate over those of idea development and transformation. Vice versa, a too strong emphasis on the logic of development would entail a risk that issues of creativity and renewal drive out concerns related to the efficiency and stability of current practices (see also Ellström, 2006 b; March, 1991).

## 5. Concluding remarks

The purpose of this paper has been to propose a conceptual framework that can be used to conceptualize and analyze practice-based innovation processes in organizations. Specifically, it has been argued that practice-based innovations can arise as a result of the interplay between, on the one hand, officially prescribed work processes – the explicit dimension – and, on the other hand, the work process as it is performed in practice with a considerable element of variation and improvisation. It is further assumed that the interplay between these two operational dimensions takes place in accordance with two complementary processes or logics. On the one hand, the logic of production with an emphasis on the mastering and reproduction of prescribed work processes and, on the other hand, the logic of development with a main focus on exploration and re-conceptualisation (reconstruction) of the operations that are performed in practice.

Considered in a more general perspective, the model introduced in this paper can also be used as a framework for analyzing the relations between individual and organizational learning. As argued elsewhere (Ellström, 2001), organizational learning can be defined as changes in organizational practices (including routines and procedures, structures, systems, technologies etc.) that are mediated through individual learning and knowledge creation. The model proposed here can be used to interpret and analyze this process of mediation, i.e. how individual learning in the performance of a work process may be translated into organizational learning manifested as changes in the explicit dimension of a work process.

Furthermore, this model may also contribute to our understanding of the distinction between planned (episodic) and ongoing (continuous) change as addressed by a number of authors (e.g. Feldman and Pentland, 2003; Tsoukas and Chia, 2002; Weick and Quinn, 1999). While theories about planned change have generally been rationalistic in nature and have emphasised change as the result of planning, decision-making and intervention, the view of change as an ongoing process in organizations has rather emphasised change as a result of the way people solve problems and learn in the course of their everyday lives. The apparent contradiction between these two views can, however, be resolved in the light of the arguments presented in this paper. Instead of a contradictory relationship, the model introduced here emphasizes the complementarity between planned (episodic) and ongoing change.

On the one hand, the implicit dimension of a work process is changed constantly by the variations and modifications in performance that arise in response to unforeseen events, disruptions and problems. Thus, there are actually processes of ongoing change in most operations. At the same time, there are also recurring attempts to shape the implicit work processes by means of change initiatives, reforms or programmes ‘from above’ or ‘from the outside’. Such interventions entail attempts, by various means, to implement structures, programmes or regulatory systems that have been designed in advance by, for example, managers and consultants. This has also been the traditional way of understanding planned (episodic) change. However, the model proposed in this paper emphasises the need to view planned change as a process that is founded also on changes ‘from below’, i.e. changes in the way work processes are actually carried out. Under certain conditions, ideas from an operation’s implicit dimension could then be externalised (articulated and codified) and become a recognised part of the operation’s explicit formal structure. Developing support for practice-based innovations can thus be seen as an alternative to the traditional ‘top-down model’ of understanding and managing change in organizations.

## 6. References

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