

# Knowledge Work and Organisational Learning

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# Knowledge Work and Organisational Learning<sup>1</sup>

Bente Elkjaer

“Power in action requires largeness of vision, which can be had only through the use of imagination. Men must at least have enough interest in thinking for the sake of thinking to escape the limitations of routine and custom. Interest in knowledge for the sake of knowledge, in thinking for the sake of the free play of thought, is necessary to the **emancipation** of practical life – to making it rich and progressive.”

Dewey, 1933, c. 1986: 224, his own emphasis.

## Abstract

In this paper it is argued that the terms, knowledge work, knowledge workers, and knowledge intensive firms point to emerging social structures and processes in organisations. This focus allows us to analyse organisations in ways that differ from the notions involving less dynamic forms of organisational configurations. It is further argued that the emphasis on knowledge in organisations raises a fundamental question of learning, i. e. how knowledge workers acquire relevant competencies. However, the answer to this depends on how organisational life and work are understood and conceptualised. Three foci are suggested, organisations viewed through their use of technology, the division of labour, and the social interactions in organisations. These three foci relate to different understandings of learning, namely learning as cognition, as situated, and as the reconstruction of experiences. To illustrate both the emphasis on knowledge and the different perspectives on learning, a case study will be presented.

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<sup>1</sup> The paper is the author's contribution to the project “Knowledge Work and Knowledge Workers” under the Human Capital & Mobility programme in the EU (1993–95). The main coordinator of the project was University of Lancaster, The Management School, UK.

## Introduction

Recently, there has been a growing interest in viewing organisations as places of knowledge creation (Nonaka 1994) and as knowledge systems (Pentland 1995). It has been argued that the term, knowledge management (Alavi & Leidner 1999, Liebowitz and Wilcox 1997), has replaced the popular term, the learning organisation, when it comes to counting publications (Scarbrough, Swan & Preston 1999). The focus on knowledge in organisations can be traced, both on a societal and an organisational level, to the still more encompassing use of information and communication technologies (ICT) (Bell 1973, Zuboff 1988).

The argument is that ICT has changed the nature of work by turning it into “knowledge work”, which, in turn, has created a demand for new competencies, i.e. for “knowledge workers” who largely work through a computer interface (Huber 1991, Neilson 1997, Orlikowski 1995). This raises the fundamental question of how knowledge workers learn to perform knowledge work, i. e. how do they go about learning and what sort of knowledge do they have to acquire to become competent? In the paper, it is argued that the answer to the question depends on the understanding and conceptualisation of organisational life and work. Is the focus in organisations placed on technology and the subsequent requirements for new skills (Zuboff op. cit.)? Is the gaze directed towards the division of labour and work practices (Brown & Duguid 1991)? Or are organisations viewed as social worlds of actions and interactions (Strauss 1993)? Each of these perceptions on organisations derives from a specific theory on what learning and knowledge involve. In the paper, this will be illustrated by analysing a case organisation.

However, first the contemporary heavy emphasis on knowledge in organisational life and work will be elaborated. The traces of knowledge in organisations, of knowledge work, knowledge workers and knowledge intensive organisations will be examined. It will be shown how the emphasis on knowledge work and knowledge workers may expand our understanding of contemporary

organisational life and work. This will be done by analysing the above mentioned case organisation, in which a new and integrated information system was implemented leading to a new division of labour and new forms of social interactions.

## Knowledge work in organisations

The focus on knowledge in organisations can be traced to the increase in employment in the service sector at the expense of employment in other sectors. This development paved the road for *Daniel Bell's* introduction of the term, “information society” (Bell 1973). The information society relies on the assets of workers’ competencies, i. e. on workers’ skills and knowledge. Bell differentiates between information and knowledge and claims that the production of knowledge is a production of *intellectual* competencies. These competencies are based upon a theoretical guided tour into data and information. About 20 years later, *Robert Reich* (1991) refers to these intellectual competencies as “symbolic–analytic” skills. These skills include abilities to identify and solve problems. According to Reich, the prerequisites for solving problems include abilities to manipulate symbols, such as data, letters and numbers as well as oral and visual representations. Examples of symbolic–analytical workers are software engineers, management consultants, PR executives and researchers.

On an organisational level, there has also been an increased interest in applying the terms, knowledge work and knowledge workers, in order to understand contemporary organisational life and work (Alvesson 1995, Blackler, Reed, & Whittaker 1993; Blackler 1993, Starbuck 1992; Sveiby & Lloyd 1987). In this context, knowledge work is also defined as activities relating to problem–solving within non–routine tasks. Such activities require creativity and independence in the individual employee. Knowledge workers will often have a higher education and work in areas where they constitute a firm’s key assets. Human competencies are the main assets in a company of knowledge workers, which *Mats Alvesson* (op. cit.) calls a “knowledge intensive firm”. Such firms are often associated with

companies within the consulting business, e.g. law and accountancy, management, engineering and computer consultancy. They include advertising agencies, R&D units, and other high tech companies.

It has been recognised that the term “knowledge intensive firms” overlaps the notion of professional bureaucracy (Mintzberg 1983). However, there are differences between a knowledge intensive organisation and a professional bureaucracy as described by *Henry Mintzberg* (op. cit.). Compared to professionals, knowledge workers do not place the same emphasis on typical professional features, such as code of ethics and membership of a strong professional association. Many knowledge workers do not belong to any of the traditional professions. They work in occupations that require as high a level of education and competencies as professionals have, but lack the symbolism that reinforces an identity as member of a distinct, unique profession. Furthermore, knowledge work will often rely heavily on self-determination and require extensive communication for co-ordination and problem-solving purposes. As such, it does not fit into a typical professional bureaucracy with its standardised skills and knowledge (Mintzberg 1983). In addition, knowledge intensive firms often operate in a competitive market as opposed to a professional bureaucracy, which is associated with a more stable market situation. In the following, the differences between a professional bureaucracy and a knowledge intensive organisation will be illustrated through a case organisation.

## An illustrative case story

Some years ago, the Danish Ministry of Finance launched six projects involving the advanced use of ICT. The aim was to design a paperless office. The ICT consisted of an information system that included a case filing and a word processing system. The National Board of Industrial Injuries (NBII) was one of the organisations that decided to apply this integrated information system.<sup>2</sup> As a

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<sup>2</sup> Initially, I contacted NBII to make a study of how the integrated information system affected the development of organisational learning and employee competencies. The study involved a series of interviews (56 all in all) and observations (over a period of 2–3 months), which I conducted at

result of introducing the new information system in NBII, some work functions, such as typist and filing work, became superfluous. However, this provided an opportunity to revise the division of labour, and both office workers and professionals (primarily law graduates) went through a training programme to prepare them for the change in tasks.

The reason for reskilling the office workers was to qualify them for case processing, which had formerly been handled almost solely by the professionals. The reskilling of the professionals aimed at enhancing their competencies to enable them to take on some of the traditional managerial tasks. These tasks included e.g. representing NBII to the outside world and taking charge of the organisational development and reskilling of the office-workers. The efforts to create a new division of labour resulted in two main categories of employees, case administrators (the professionals) and case secretaries (the office workers). Although, there was still a division of labour based upon the two groups' different educational backgrounds, the intention was to shift gradually as much of the case processing work as possible to the office workers.

The term traditionally associated with organisations like NBII is professional bureaucracy (Mintzberg op. cit.). The employees' competencies are the glue that holds a professional bureaucracy together. The idea is that everybody knows what everybody else is doing due to their initial educational background. The products of a professional bureaucracy are highly complex but standardised, which makes a professional bureaucracy very efficient in a stable market environment. However, a professional bureaucracy will seldom be associated with an innovative organisation. Professional bureaucracies are for example universities, general hospitals, school systems, and some of the legal public administrations.

In many ways, NBII can be characterised as a professional bureaucracy. It is an organisation that processes cases by using standardised legal knowledge and skills provided by employees, who have graduated in law. Thus, NBII rests upon

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the organisation and while attending the professionals' training programme. I kept in contact with

employees who have high entry competencies. However, if we take a closer look at the employees, the organisational structure, and the market as it has developed, in part due to implementation of the information system and the new division of labour, it also reveals the emergence of knowledge work and knowledge workers in NBII. To examine this aspect, the following three characteristics of knowledge intensive firms will be compared with the development in NBII.

(1) *Attachment to a professional association*: The majority of the professionals in NBII had all graduated in law, so in that sense they were recruited on the basis of competencies acquired from a higher education. They also had a strong affiliation with the legal profession as such, including the ethics of law. From this point of view, NBII is best categorised as a traditional professional bureaucracy. But the professionals' tasks gradually changed due to implementation of the information system and the new division of labour. Now, the professionals had to work directly on the computer interface, whereas formerly office workers had typed and filed the results of the case processing. In addition, the professionals had been placed in teams with office workers, whom they had to teach case processing. The intention was in the near future to allow the professionals to concentrate on the more difficult cases in addition to the outgoing and representative tasks, which, according to the new division of labour, they were required to do. The new demands on the professionals entailed a development of their general competencies as employees with a higher educational background, and not just a development of their professional knowledge as legal advisers. The demands also included the use of creativity and their ability to perform independent tasks, which is normally not associated with non-managerial employees in a professional bureaucracy.

(2) *Organisational hierarchy*: Often, an organisational hierarchy, such as the one in NBII, is associated with professional bureaucracy. Indeed, NBII was organised as a traditional hierarchy, but its structures were changing due to the changes in technologies and the division of labour. In fact, there was an attempt in NBII to

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the organisation for about 2 years from my initial contact to I submitted my final report to them.

construct new cross-organisational structures besides the formal hierarchy. The initiative came from the reskilling programme for the professionals, who were placed in teams that included members from all the different departments in NBII. The conscious aim was to prepare the professionals for future networking and for entering cross-organisational task forces. Although the bureaucracy was not broken down over night, cross-organisational, co-ordination and communication structures were supported in the emerging NBII. Furthermore, all employees had participated in team-building courses. And although many employees were critical of the management philosophy represented by team-building, they still regarded the team-building courses as beneficial, as they gave them the opportunity to improve social relations across the organisation.

(3) *Market monopoly*: If we turn from the professionals' competencies and the organisational structures towards the organisational environment, it is claimed that professional bureaucracies hold market monopolies. Until recently, this had also been the case in NBII. However, just a few years ago, NBII was just a vote in parliament away from being privatised and taken over by insurance companies. This event played an important part in initiating the change processes in NBII. Although NBII was an old public enterprise, it existed in a dynamic environment in the sense that privatisation might be an actual prospect. Therefore, when we look at NBII, the traditional characteristics of a professional bureaucracy in a stable environment do not apply.

Looking at NBII through the notions of knowledge work, knowledge workers and knowledge intensive firms provides us with a way of focusing on the emerging social structures and processes across the formal hierarchy of a professional bureaucracy. It also allows us to ask new questions about learning and knowledge. Just as it makes sense to look for emerging social structures and processes in organisations, it is fruitful to take a closer look at theories of learning and knowledge. Such an approach helps us to focus on what sort of knowledge it is that knowledge workers have to acquire in order to become competent – and how they have to proceed, i. e. which sort of learning processes will further the



competence development. It is to this endeavour that I will now turn my attention.

## Theories of learning and knowledge

Concurrently with the interest in analysing organisations in the light of knowledge, there has been an interest in learning in and by organisations. This has manifested itself as an interest in the design of learning organisations (Pedler & Aspinwall 1998, Senge 1990) and the notion of organisational learning (Argyris & Schön 1996, Easterby-Smith 1997), which in turn has led to an upsurge in coining a new concept of learning (Brown & Duguid *op. cit.*, Cook & Yanow 1993, Elkjaer 1999, Gherardi, Nicolini & Odella 1998). The result has been a pursuit to place learning and knowledge production in the social practices as opposed to the individual mind (Lave & Wenger 1991, Wenger 1998). This approach has led to the use of terms such as distributed cognition (Salomon, ed. 1993), constructivism in education (Garrison 1998) and competency-based education (Kirschner 1999).

However, from the very outset the understanding and conceptualisation of organisational life and work derive from a (more or less implicit) theory of learning and knowledge. For example, when the focus is on the ICT use in organisations and how to work on a computer interface, the understanding of learning may have a cognitive slant and include a concept of knowledge that tends to be abstract in nature. Once again, the case organisation will be employed as an example, because it shows how different foci on organisational life and work may lead to different understandings of learning and knowledge. The case may be analysed as (1) a change in technology due to implementation of the new information system, as (2) a change in the division of labour as a result of the reskilling activities, and (3) as a change in the social interaction processes following the new forms of networking in NBII. These differences in emphasis on organisational changes have different implications for how we understand what it means to learn and how we understand the concept of knowledge.

The organisational metaphors that we can apply to the three approaches to organisational changes are organisations as texts, as work practices, and as social worlds. In connection with these three metaphors, three different learning theories will be introduced: a cognitive approach to learning; a situated theory of learning; and finally an approach to learning that combines both cognition and practice as well as thinking and doing. The latter approach may be called experience-oriented, as learning is perceived as a reconstruction of experience.

### Organisations as texts and learning as cognition

Implementation of the new information system in NBII meant that the files were available electronically, and that the file system could be operated together with a word-processing system. The system allowed employees to retrieve cases, write their own case solutions in a word-processing programme or use some of the many standard letters of case decisions when writing to their clients. From the computer interface there was also access to different databases, including earlier case-decisions and various statutory provisions.

In *Shoshana Zuboff's* (1988) terms, these technological changes had turned work in NBII into *texts* (see also Neilson op. cit., Orlikowski op. cit.). Data and information related to case-processing were represented as symbols and available to all via the computer interface. According to Zuboff, the employees must have special competencies in order to transform data and information into knowledge, i.e. to make competent use of the textual representations.

Zuboff differentiates between competencies that are used in computer work where automation and/or informing are the objective. When computers are used for automation purposes, action-centred competencies are sufficient. When work processes are not only automated, but also informed, intellectual competencies are required. The action-centred competencies can be characterised as implicit because they appear through actions, and as such they are often tacit. They are also contextual, i. e. concrete and specific, as well as personal, i. e. part of the

individual's experience. These skills are learned through observation, imitation and action rather than through teaching, reflection or verbalisation.

In order to understand what Zuboff means when she talks about intellectual competencies, it is necessary to focus on the nature of symbols:

“The data interface is a symbolic medium through which one produces effects and on the basis of which one derives an interpretation of ‘what is happening’. These symbols are abstractions; they are experienced as remote from the rich sensory reality to which people are accustomed. (...) In a symbolic medium, meaning is not a given value; rather, it must be constructed.”

Zuboff op. cit.: 76.

It is in order to construct meanings from symbols on the data interface that intellectual competencies are needed. Some sort of theoretical framework is necessary, as the meaning of data and information does not automatically jump out of the screen and into the mind of the employee working with the computer. Therefore, the employees need to perform explicit reasoning, i. e. they must reason through the use of language. In other words, a precondition for working in informed organisational contexts is a verbal language. Furthermore, the ability to use language in an informed environment, i. e. to communicate with others, requires an understanding of the theories behind the symbols that appear on the data interface in addition to professional knowledge about the domain with which one is working, e. g. theoretically based knowledge on legal procedures for processing claims. The intellectual competencies are independent of context, i. e. they are abstract and general and can be applied in many different settings.

The process of learning the intellectual competencies that are necessary to operate competently in an informed environment is related to the explicit, scientific reasoning traditionally associated with formal education. Zuboff refers to informed work as being cognitive processes and to learning as being cognition. She believes that such learning is rooted in the individual's ability to think in an abstract manner. In order to transform the individual cognition into organisational

assets, employees have to engage in communication and dialogue around problem-solving activities.

Zuboff's concept of learning takes its point of departure in the individual and his/her ability, through a formal education, to enhance a capacity for handling abstract issues, i. e. theoretical knowledge. As such, Zuboff's concept of knowledge is aligned with Bell's differentiation between information and knowledge with demands for a theoretical framework as well as with Reich's focus on the need for symbolic, analytical skills. All these approaches point to the fact that work processes are changing, and new, theoretical and intellectual competencies are in demand.

This understanding of what it is to know and to learn detaches thinking (abstract reasoning by the use of language and theory) from acting (action-centered as opposed to intellectual competencies). It also separates knowledge "stored" in the head from knowledge "known" by the body. The next contribution to how we can understand the nature of learning and knowledge in organisations takes us in a completely opposite direction. It is an approach where cognitive processes and individuals dissolve into a concept of practice.

## Organisations as work practices and learning as situated

Another way of interpreting the NBII case is to focus on the new division of labour, which resulted from the reskilling activities. This may, in *Jean Lave & Etienne Wenger's* (1991) terms, be conceptualised as an evolution of new *social work practices* (see also Lave 1997, Wenger op. cit.). This process entails the development of new communities of practice, including new forms of participation in the social work practices.

When we use this analytical perspective on the NBII example, we see that the communities of practice, especially among office workers, have changed as a result of ICT and the new division of labour. Prior to the introduction of the new

information system, there were communities of practice among e. g. file workers and typists as well as office workers who did less complicated case-processing. However, from the outset of the change process in NBII, these employees were all placed on an equal level in a new group termed “case secretaries”, irrespective of their former position and function. Then, they were all paired with a professional in a tutorial relationship, i. e. a relationship with the explicit purpose of transferring knowledge from the professional to the secretary. We might say that the pattern of the communities of practice went through a dramatic change, as the old communities of practice among the case secretaries literally were broken down.

The old communities of practice among the professionals were also shattered. First of all, they were now required to use computers. In addition, the professionals were paired with case secretaries and expected to take time out of their schedule to train this group of employees. On the one hand, they were asked to expand their traditional professionalism to include former secretarial work. On the other hand, they were expected to hand over part of their professional work to the new-formed group of case secretaries. Furthermore, they were asked to communicate in person (not only in writing) with the office workers. They were even asked to go beyond their traditional communities of practice and mingle with clients and others, i. e. they had to be more outgoing as representatives for NBII. In a way, we might say that the traditional hierarchy between office workers and professionals had been shattered, as both groups had crossed the demarcation line of one another’s former professional area, i. e. former communities of practice.

In terms of learning, Lave & Wenger would argue that NBII had acquired new opportunities for situated learning. Lave & Wenger have developed an analytical concept of learning, namely learning as “legitimate peripheral participation” (LPP). The concept, LPP, derives from several interpretations of apprenticeship learning situations, i. e. situations in which learning as participation in practice plays the essential role. The background for developing the concept, LPP, was to

find a term that could explain learning in situations where no teaching was taking place. However, developing the concept, LPP, had a deeper purpose than understanding apprenticeship learning situations. Lave & Wenger regard the concept as an approach to the understanding of all forms of learning. When the notion, LPP, is used, there is no differentiation between practice and learning. Participation in all practices is regarded as implying some form of learning.

The concept, LPP, draws attention to the fact that learners inevitably are participating in communities of practice. The mastery of competencies in organisational settings requires that newcomers move toward full participation in the socio-cultural practices of a community, e. g. a professional community. When we view learning as an integral and inseparable part of social practice, it implies that the learned skill is a result of actually engaging in the process of performance. The concepts of meaning, understanding and learning are all defined relatively to the actional contexts, not to self-contained structures.

Therefore, LPP changes the locus of learning. Learning takes place in a participation framework, not in the individual mind, which means that it is mediated by the differences of perspective among the co-participants (see also Boland & Tenkasi 1995). It is the community that learns according to this definition. However, such a learning process does not imply a disregard of the individual, but a perception of the individual as part of a community. In this sense, learning implies both learning a profession and acquiring an identity in addition to a sense of belonging to the organisation. However, within this framework of situated learning, the distinction between learning and practice and the distinction between the individual and the organisation seem to dissolve.

Lave & Wenger represent the opposite position in relation to Zuboff. However, in their attempt to contextualise and situate learning and knowledge, they tend to disregard the individual experience. Apparently, they do not take into account that individuals move from context to context, from situation to situation – and “carry” their identity with them or adapt it to all the different communities of

practices – or communities of pleasure – in which they participate (see also Østerlund 1996). This is the main reason why I turn to a theoretical framework that unites Zuboff and Lave & Wenger.

## Organisations as social worlds and learning as experience-oriented

The new opportunities for interaction in NBII were a result of the ICT change and the new division of labour. Instead of focusing solely on the changes in technology or the division of labour, the focus on interaction encompasses both aspects. It leads to a theory of learning and knowledge that combines actions and reflective thinking, personal development and development of the social context. It is an approach inspired by the work of *John Dewey* (Dewey, 1916 c. 1966, 1933 c. 1986, 1938 c. 1963, 1938).

Dewey defines education and learning in general as a continuous reorganisation and reconstruction of experience. Learning takes place all the time and in all situations where people act and interact – reflect and think. Dewey's notion of learning, or rather reflective experience, grows out of a situation where a person is confused or in doubt, i. e. confronted with a situation that may be defined as problematic. It is a situation that makes a person stop, think, act and think again. Dewey's theory of learning is grounded in his notion of inquiry that relates to how knowledge is created – or rather how one gets “to know” something. Dewey opposed the idea that knowledge is developed by way of abstract propositions as prescribed in the theory of knowledge in formal logic. Instead, he argued that knowledge is constructed by making inquiries into situations of uncertainty. These inquiries are, however, always based upon the present experience of the inquirers.

An inquiry begins with a sense of uncertainty about a situation. Often, it is not an intellectual sense, but just a hunch that something is wrong. But as soon as the inquirer(s) begin to define and articulate the problem, they will use their

experience, and the inquiry will enter the sphere of the intellect, of thoughtfulness. One or more suggestions for resolving the problem may be probed and tested until a final solution is reached. To ensure that the problem is solved, the former sense of uncertainty must be gone with respect to definition and articulation of the problem.

The separation between cognition and practice is replaced by a continuity of knowing and acting. Dewey regarded education as growth, or rather a growing process, i. e. a continuous process that is part of the development of life. Although learning takes place in social situations, it is the individual learner who learns, and learns through reorganising and reconstructing her/his experience. This leads to his definition of what it means to learn from experience:

“To ‘learn from experience’ is to make a backward and forward connection between what we do to things and what we enjoy or suffer from things in consequence. Under such conditions, doing becomes a trying; an experiment with the world to find out what it is like; the undergoing becomes instruction – discovery of the connection of things. (...) (1) Experience is primarily an active–passive affair; it is not primarily cognitive. But (2) the **measure of the value** of an experience lies in the perception of relationships or continuities to which it leads up. It includes cognition in the degree in which it is cumulative or amounts to something, or has meaning.”  
Dewey, 1916, c. 1966: 140, his own emphasis.

Thus, experience is not mere activity, mere doing, and it is not only change, but change that implies reflection on former actions in order to anticipate further consequences. The mere participation in practice, in action, does not create learning. Only a person who is able to reflect upon her/his own actions and reorganise as well as reconstruct experience by continuously employing reflection – thinking – as a means of action is learning. Therefore, reflecting and thinking are intentional efforts aiming at discovering specific connections between our actions and the resulting consequences, so that the two elements will become continuous. This will allow a person to act with an end in view, i. e. in a purposeful manner. We may also say that learning begins by thinking (by having



an end in view, a purpose) and results in further thinking enabling the learner to come up with new aims, etc. Thus, action is a necessary condition for thinking, but not a sufficient one. Thinking, however, requires a language. In order to reorganise and reconstruct experience, the learner needs a language that will enable her/him to e. g. generalise about specific actions and communicate them by means of words and concepts to her/himself and others.

It is not a matter of pursuing an argument for or against abstract thinking. It is simply more fruitful to view all thinking and reflection as related to and reflecting a social practice. Consequently, the task is to develop a theory of learning and knowledge without reproducing a separation between acting and thinking, doing and knowing. We should view acting and knowing as continuous aspects or parts of an individual's growing experience. However, the whole process is embedded in a practice. This means that learning involves both change of social practice and of individuals who are engaged in a continuous reorganisation and reconstruction of their experience – and expertise. They are engaged in personal growth processes as well as changes in the organisational, social worlds.

Dewey's theory of learning covers Lave & Wenger and Zuboff as well as a theory of knowledge. Dewey emphasises the need for both acting and reflecting in addition to the need for focusing on both the individual and the social world with which he/she is interacting. He does this by way of the term "situation" but without eliminating the individual. Dewey regards learning more as a method, a process of inquiry, than a specific content of knowledge. However, the inquiry process includes action as well as reflection, thinking and cognition. Thus, Dewey does not draw a line between knowledge as an abstract or concrete issue, as he believes knowledge is shown through the informed interaction between individuals, i. e. through the individual's reflective use of former experiences and ability to reconstruct these in new situations of uncertainty.

## Learning and knowledge re–visited

The three understandings and conceptualisations of organisational life and work as illustrated in the focus on technology, division of labour and social interactions have different implications for how knowledge workers may become competent and for the learning activities designed to support the process. However, the notion of knowledge work, knowledge workers and knowledge intensive organisations tends to stress knowledge as related to intellectual competencies. This may be due to the grounding of the terms in application of ICT and the notion of the information – or knowledge – society. Such an understanding of knowledge leads to an understanding of learning within a framework of cognitive theory. This is much in line with Zuboff’s understanding of the new competencies, which application of ICT requires that employees possess in an informed environment. But as indicated above, this is not the only way to understand learning and knowledge (see figure).

Figure 1

<i>Focus</i>	<i>Organisational metaphor</i>	<i>Learning theory</i>
Technology	Text	Cognitive theory
Division of labour	Work practices	Situated learning
Interactions	Social worlds	Experience–oriented

The understanding of learning depends upon the focus on organisational life and work and on the resulting organisational metaphors. And the different approaches to the understanding of learning have different implications for the actions taken to develop learning. When learning is understood within a cognitive, theoretical framework, traditional school–like learning fits the bill. This is home for abstract terms and theoretical concepts. When learning is regarded as situated and related to the organisational work and the communities of practices around the work, actions to further learning are aimed at getting access to participate in different communities of practice. And, finally, if we adopt the view that learning takes

place in social worlds through interactions and by reconstructing experiences, the opportunities to indulge in inquires may enhance further learning.

Thus, the answers to how knowledge workers acquire relevant competencies cannot be found by focussing solely on knowledge in organisations. To find the answers we must refer to a specific focus on organisational metaphors for organisational life and work as well as to the relevant theory of learning.

## Conclusion

This has been a long journey that took its point of departure in focusing on knowledge in organisations and its relation to the still more encompassing use of ICT. The questions that were asked focused on how knowledge workers acquire competencies to perform knowledge work. How do they learn? The answer to these questions depends upon the way organisational life and work are conceptualised. The different ways of focussing on organisations may be viewed through an emphasis on technology, division of labour and social interactions. The different approaches derive from different theories of learning and knowledge.

The paper has shown how a focus on knowledge work, knowledge workers, and knowledge intensive firms may replace a focus on organisations as professional bureaucracies. By analysing organisations through these notions we can detect emerging social structures and processes. Furthermore, the paper has shown how certain understandings and conceptualisations derive from different theories of learning and knowledge. An awareness of these different ways of analysing organisations – from the perspective of technology, division of labour and social interactions – will have different implications for how we design new alternatives to learning in and by organisations.

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