

Designing for Learning in the Workplace

The implications of an emerging knowledge economy for professional development

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Abstract

In an economic environment where knowledge is becoming the main organisational currency, organisations must be able to learn fast, respond to recurrent unfamiliar challenges, and ensure that their workers can construct and share strategically valuable knowledge as well as acquire technical and interactive skill. Competitive advantage relies increasingly on the capability to regularly generate and apply new knowledge to continuous improvement and radical innovation in work processes, products and services and to co-create value with customers (Brooks, 1997; Leonard-Barton, 1998; Prahalad and Ramaswamy, 2002). We call this concept 'knowledge productivity' (Kessels, 1995, 2001.)

This relative new domain of research that explores the relationships between innovation, learning and organisational characteristics also requires new approaches of researchers studying the field of knowledge productivity. This paper proposes a number of related research questions and combines the findings of recent series of studies in the field of knowledge productivity, the features of workplace learning and self-regulated knowledge development,

Conceptual Framework

Knowledge productivity has been described as the ability of a team to gather relevant information, that forms the basis of the development of new competencies, that will be applied to gradual improvement and radical

innovation of work processes, products, services and customer relationships (Kessels, 1995 ; Harrison & Kessels, 2004).

The assumption is that, in order to have long-term success in a knowledge economy, an organisation needs to continuously improve and from time to time radically innovate its products, services and work processes (Drucker, 1993; Nonaka & Takeuchi, 1995). Gradual improvement elaborates on what is already present and leads to additional refinement and specialization. Radical innovation is based on breaking with the past and creating new opportunities by deviating from tradition. Therefore, the results of knowledge productivity will be measured in terms of improvement and innovation of products, services and processes.

In a knowledge economy the company results mainly depend on the development and utilisation of the knowledge that is needed to realise the desired improvements and innovations (e.g. Leonard-Barton, 1995). Here, social factors, individual theme's, motives and talents play an important role. The development and utilisation of knowledge touches the core of professional development. In this (learning) process, we distinguish three capabilities (Kessels, 2001; Nonaka, Toyama & Byosière, 2001):

- to identify, gather, exchange and interpret relevant information;
- to use this information to develop new competencies;
- to apply these competencies to improve and radically innovate.

This means that knowledge productivity not only comprises producing (creating) knowledge, but also making knowledge productive (application). It also means that the sustainable capability to improve and to innovate has greater value than the factual improvements and innovations as such.

Knowledge development is a human affair, and not restricted to the processing of cognition. The conditions in the work environment should be conducive for the social process of knowledge development. Strategies, structures and culture have an impact on the plan for learning – a corporate curriculum (Kessels, 2001) – that provides subject matter expertise, problem solving capabilities, reflective skills, communication skills, self-regulating capabilities of motivation, affinities and emotions, peace and stability, creative turmoil and practical wisdom.

The corporate curriculum and a supportive work environment will be influenced by the context of the organisation. The triggers for investing in improvement or innovation primarily come from outside the organisation (e.g.

market, technological, social, environmental, political developments), but can also stem from internal challenges and ambitions (e.g. problems in work processes, worker satisfaction, retention, change in vision and ambition).

An important challenge is to design interventions that act on the conditions in the work environment as well on team learning and professional development and thus facilitate the process of knowledge creation. At the mean time, there is a number of observations that indicate that the traditional management approach based on goal setting, strategy, command and control, does not support the conditions for knowledge productivity.

Research Questions

The emerging knowledge economy and the concept of knowledge productivity points to some key research questions for studying knowledge productivity, learning in the workplace and professional development, including the following:

- How do knowledge productivity, improvement and innovation of processes, products and services interrelate?
- How can personally stimulating work environments be created, and what mutual support systems are needed to sustain them?
- If the traditional management model is ill-suited to the domain of knowledge construction, what new model should replace it, and what kind of changed skills and disposition are inferred?

What are key questions and strategies for researchers studying the field of knowledge productivity, learning and professional development, and what are their practical implications?

Results

Here, a number of recent research projects will be presented, that shed new light on the challenges that have been introduced, and that contribute to answering the aforementioned research questions.

Researching features of workplace learning conducive to knowledge productivity

(A joint research project of the University of Twente and the University of Leiden)

In a series of studies in 48 institutions in the Health and Welfare sector in the Netherlands has been reported by Van Lakerveld, Van den Berg, De Brabander, & Kessels, (2000). From an elaborate survey, in which 271 respondents were professional workers and 110 more were either managers or held staff positions responsible for quality management or training, the main findings to emerge were that:

- the corporate curriculum's learning functions of *subject matter expertise*, *problem solving*, *reflective skills*, *interaction and communication*, and *self-regulation* described different sets of learning characteristics, but they related sufficiently, positively to one another to justify their combination in the overarching corporate curriculum concept.
- all five learning functions related positively to improvement and innovation of work processes and services in the Health and Welfare sector. However, those supporting *reflection*, *interaction* and *self-regulation* seemed to be the most powerful in bringing about improvement and innovation.
- *Reflection* was the function most often mentioned as being adversely affected by lack of time. However, it emerged as the single most crucial function for developing capability to improve and innovate in the day to day work environment.

Although the studies focused on learning as it occurred in the workplace, the responses showed that participants most closely associated the concept of 'learning' with formal instruction. They tended to attribute more learning outcomes to the traditional mode of participating in courses and less to workplace processes like work-related meetings, cross-organisational co-operation, and research activities. Although most felt that their work situation could to a large extent be considered a learning environment, their instinctive definitions and beliefs about learning were most often related to classroom activities (Van Lakerveld, Van den Berg, De Brabander & Kessels, 2000). The finding that learning is mostly associated with classroom training, even by HRD professionalism is also reported by Tjepkema, Stewart, Sambrook, Mulder, Ter Horst and Scheerens (2002). The research project investigating the learning functions of the corporate curriculum has currently been extended to a larger population, and replications of the in initial design took place. The findings, based on observations in more than 1100 work units, confirm the

initial relations between learning functions of the corporate curriculum and improvement and innovation of work processes and services (Van Lakerveld, in press).

Researching self-regulated knowledge development

(A research project at the University of Twente, faculty of Behavioural Sciences)

Another series of studies investigated issues relating specifically to *self-regulation of work and learning* (Van der Waals, 2001; Van der Waals, Kessels & Euwema, 2002). Here, developmental research was conducted into a facilitated employee-driven HRD research project. The aim was to produce more significant improvements and innovations, substantially increased outcomes of customer satisfaction, employee satisfaction and productivity.

It is central to the concept of self-regulated learning and development that management does not set the goals or determine the direction of employees' development. The main principles underpinning the concept of self-regulated knowledge development are self-direction and self-organisation, the integration of working and learning, a coaching style of leadership, collaboration, and knowledge development that has the potential to lead to improvement and innovation of products and services.

This research project consisted of three main studies. The first (a reconstruction study) comprised the analysis of the design and development process of a management driven HRD policy in ABP, the largest pension firm in the Netherlands. The second (also a reconstruction study) was a replication study with five other pension firms. The third study (a development study), concerned an *Insight into Client* programme that resulted in new competencies, increased co-operation, improved processes, product innovations and system innovations. The employee-driven approach to learning and development that the programme involved appeared to lead to a significant increase in customer satisfaction, employee satisfaction and productivity. Results indicated that self-regulated learning and development fitted better with organisational context than imposed employee training and development, and produced more significant improvements and innovations.

International Comparison of knowledge productivity and innovation

(A research project at the University of Twente, faculty of Behavioural Sciences)

A series of 16 case studies have been conducted in Western Europe and Asia. The main goal was investigating the various components of the conceptual framework as described above, including the corporate curriculum. These studies revealed characteristics of the learning climate of work environments that were successful in producing incremental improvement and radical innovations (Keursten, Verdonshot, Kessels, & Kwakman, 2004; Zhou, 2003). The main conclusions can be summarised as follows:

- Characteristics of the work environment: innovation is likely to occur in teams that develop sufficient learning skills, pleasant working relationships and positive values and beliefs. Innovative teams are supported by encouraging leadership, a flexible organisation structure and abundant autonomy.
- The corporate curriculum: creative turmoil seems to drive the innovation and improvement process. The urgency participants feel to develop something new, often caused by external pressure, creates the motivation to start and continue. At the same time, room for experimenting with new ways of working and problem solving offers energy and new perspectives.
- The substance of the innovation process is provided by the subject matter expertise – the first learning function of the corporate curriculum. Subject matter development was at the heart of most of the studied innovation processes.
- The autonomy and responsibility given to teams that are involved in a process of improvement or innovation, was crucial for the process to succeed. Participants needed the room to make their own choices and to decide on their own way of working. The communicative skills needed for doing this successfully, appeared to be of great importance but definitely not self-evident. Team members needed support in order to develop these communicative skills.
- Participants need to take time to reflect upon the process they are going through. This not only benefited the decision making process on what next steps to take but also the reflection upon the supporting learning process.
- The social context for knowledge productivity is provided by the cross-functional personal contacts, care and respect, and tolerance for mistakes. The personal theme's motives and passion leading to curiosity, the drive to work towards concrete results, in combination with reward and recognition, serve as important reasons for people to put an effort in joined knowledge development. The organisation and its management have an important role in supporting these innovation

processes. This happens through inviting and even tempting staff members to engage in the learning and innovation process. It appeared to be impossible to manage the processes of knowledge productivity in a traditional fashion of command and control.

Conclusions

The purpose of this paper was twofold:

- to identify and explore ways in which organisations can develop the capability to regularly generate and apply new knowledge to continuous improvement and radical innovation in work processes, products and services and to customer relationships. We have termed that capability 'knowledge productivity'.
- to suggest key questions and strategies for researchers studying the field of knowledge productivity, and designing supportive learning environments for knowledge productivity to occur.

We have suggested variables and factors to provide the basis for a research construct, and outlined some findings that are emerging from early empirical research. The links between these findings and those from research into learning and development in organisations more widely are illuminating, but many fundamental research questions remain unanswered. The series of studies, reported on here, raise a number of key questions:

- How should we conceptualise the social process of knowing as it occurs in organisations? Shared subject matter expertise and domain specific information undoubtedly play an important role. But related factors such as learning skills, reflection, pleasant working relationships, positive values and beliefs, curiosity, passion, trust, respect, and recognition, also seem to have an impact on the knowledge development process. Here, a specific focus on the characteristics of what may be called Social Capital are into play (Nahapiet & Goshal, 1998; Lin, Cook & Burt, 2001; OECD, 2001).
- What role should management play in the domain of knowledge productivity? Inspiring leadership appeared to be conducive to the innovation process. However, imposed hierarchy, enforced obedience and traditional command and control structures seem to hamper the required autonomy and self-directedness of knowledge workers.

- How to create a work environment that is experienced as a powerful learning environment? Although it is generally acknowledged that learning plays a decisive role in processes of improvement and innovation, most participants in the reported studies, even HRD professionals, primarily associate learning with formal training and classroom activities.
- Consistent answers or at least plausible indications for the aforementioned questions are needed to address the remaining question: What interventions support and facilitate the social process of knowing, knowledge productivity, leadership capability and a learning orientation of the workplace?

The concept of knowledge productivity relates knowledge construction, gradual improvement and radical innovation to characteristics of the daily work environment perceived as a powerful arena for learning. The integrated use of research strategies based on reconstruction, description and interventions can provide rich data sets, and can illumine especially the design for learning in the workplace and professional development in the context of an emerging knowledge economy.

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