

This paper was subsequently published in

Nieuwenhuis, L. & Brown, A. (2009) 'In Search for Flexible Expertise as a Source for Firm Viability.' In F. Oser, U. Renold, E. John, E. Winther and S. Weber (Eds.) Dordrecht: Sense Publishers. [ISBN 978-90-8790-736-5], pp 409 - 422.

This is a pre-publication version.

In search for flexible expertise as a source for firm viability

Paper for the Göttingen Conference on Research on Vocational Education and Training for International Comparison and as International Comparison

Göttingen, Germany, September, 25-28, 2007.

Loek F.M. Nieuwenhuis
IVA-Tilburg University, the Netherlands

Alan Brown
Warwick University, UK

Abstract

Growth, employment and competitiveness are major challenges for Europe and are central elements of the Lisbon strategy. Global economic, technological and societal changes imply a further emphasis on the capacity of organisations to innovate if they want to survive.

Current knowledge on the learning organisation assumes a direct relationship between organisational measures and the innovative capacity of these organisations, but largely ignores individual learning aspects. In rapidly changing working environments, flexible experts will be able to adapt their expertise rapidly and smoothly to different tasks, functions and/or environments. Flexible expertise is developed by Feltonovich c.s. (1996) and related to a dynamic view of the world (in contrast to fixed expertise, which goes along with a static view of the world). Innovative entrepreneurs are characterised by flexible expertise (cf. Gielen, Hoeve and Nieuwenhuis, 2003). Investing in flexible expertise of the workforce increases the innovative capacity of firms and labour organisations. To investigate the concept of flexible expertise, we elaborate on the Nelson and Winter (1982) concept of collective routines in the enterprise, or more specifically in communities of practice within the enterprise. Routines are adaptive procedures, robust to small changes in external and internal production contexts. Innovation can be conceptualised as sustainable change of collective routines (Hoeve and Nieuwenhuis, 2006). Changing collective routines for innovation asks for learning processes on individual and collective level (the worker within the community of practice; Wenger, 1998): cognition, practice and culture are all at stake. It asks strategic interventions at the level of the enterprise in order to facilitate innovation and learning processes on collective and individual level. Understanding the relation between flexible expertise of the workforce and continuous innovation is needed for targeted investments in human resources (Nooteboom, 2000).

Four labour organisations were studied in the Netherlands (Gielen, Nijman & Nieuwenhuis, 2007) in order to get insight in the relations between innovation and knowledge management at the one hand and learning on the shop floor at the other. Two houses for elderly care and two industrial enterprises (plastics and copying machines) were studied by interviewing management and some employees and by studying documents and organisational reports (annual reports, internal policy documents). The result is a global impression of the organisation of proactive learning processes.

Brown (2005) highlights how the success of small companies could partly depend on the way they handled, either explicitly or implicitly, the gradual development of 'skilled incompetence' (Argyris, 1990). For some companies the current way of doing things, including the constant search for and focus upon technical development, meant they neglected more strategic considerations, including plans for the professional growth of staff and opportunities to reflect systematically on their ways of interacting externally. Several effects of the accumulation of 'skilled incompetence' (Argyris, 1990) might be expected in an organisation that does not develop specific plans for professional growth. A company's small-size allows fast knowledge sharing among people, ensuring less dependence on a single resource and improves role flexibility. Yet the company's model of investment on human resources should be developed in order to comply with conditions of both keeping key human resources and achieving long-term objectives.

1 The concept of flexible expertise

To investigate the concept of flexible expertise, we elaborate on the Nelson and Winter (1982) concept of collective routines in the enterprise, or more specifically in communities of practice within the enterprise. Routines are adaptive procedures, robust to small changes in external and internal production contexts. Innovation can be conceptualised as sustainable change of collective routines (Hoeve and Nieuwenhuis, 2006)

Changing collective routines for innovation asks for learning processes on individual and collective level (the worker within the community of practice; Wenger, 1998): cognition, practice and culture are all at stake. It asks strategic interventions at the level of the enterprise in order to facilitate innovation and learning processes on collective and individual level. Current knowledge on learning organisations assumes a direct link between organisational measures (knowledge management) and the innovative capacity of these organisations, but it is argued here that the individual learning aspect is mostly overlooked in this line of thought. Conform the EU policy towards a social economic policy, in which social cohesion is closely connected to competitiveness, the individual factor should be stressed. Personal agency is both a social and an economic goal in the European policies.

While certain routines will be needed in every job, there is a growing need for people who are capable of developing adaptive or flexible expertise. The latter kind of expertise can be called flexexpertise: the ability to maintain a certain amount of expertise under changing circumstances and in different situations, and also the mastery of certain learning strategies and learning skills to reach a certain level of expertise in any domain (Boerlijst, Van der Heijden & Verhelst, 1996; Van der Heijden, 1996).

An employee has to remain capable of mastering the necessary new relevant expertise to a sufficient degree and within the foreseeable future. In rapidly changing working environments, flexexperts will be able to adapt their expertise rapidly and smoothly to different tasks, functions and/or environments. People with this ability

and mastery are experts in developing new expertise and in being resistant to change or being adaptive. They have the capability of taking their expertise to an application in a new discipline.

Flexible expertise will also allow an expert to have a general view on certain matters in the organization that have a direct impact on the accomplishment of the objectives of the company. As such, flexperts employ a strategy of working at the growing edge of their competence. The use of this strategy implies continuous reinvestment of mental resources through the adoption of personal challenges for professional learning (Van der Heijden, 1998, p. 69) (see also Van der Heijde & Van der Heijden, 2006).

Flexible expertise is developed by Feltovich c.s. (1996) and related to a dynamic view of the world (in contrast to fixed expertise, which goes along with a static view of the world). Innovative entrepreneurs are characterised by flexible expertise (cf. Gielen, Hoeve and Nieuwenhuis, 2003). Work process knowledge (Boreham, Fischer a.o., 2001) can be seen as an specification of expertise of the workforce: it stands for the understanding of (the own position within) the complete production processes and chains (from supplier to market), the company is competent at.

Investing in flexible expertise of the workforce increases the innovative capacity of firms and labour organisations. For successful innovation, flexible expertise of the workforce is an essential asset, both in the creative stage of innovation (the development of new procedures and products) as well as in the exploitation stage of innovation (the economic use of new knowledge). Therefore, the cognitive and cultural capacity of working teams is essential for the learning company, both in the exploration stage, when new knowledge combinations are sought for and inventions are designed and conceptualised, and in the exploitation stage, when innovations are to be tailored into economic work processes and marketing strategies. Understanding the relation between flexible expertise of the workforce and continuous innovation is needed for targeted investments in human resources (Nooteboom, 2000).

2 The concept of life long learning

The start of the 21st century is characterised by a large amount of dynamics. International developments have large impact on European and national economies and cultures. The economy is globalising, caused by increasing pace of logistics and information streams: the world is getting smaller and smaller. Technology and science develop rapidly, causing a boost of innovation. Effective networks (both social and digital) give innovation a strong international dimension. National borders are fading and the European answer on this is expansion of the European Union. An open economy is supposed to strengthen the economy.

Legal and illegal immigrants try to join the benefits of the Western economies, causing not only large economical developments but also cultural changes. In national politics we see two antagonistic reactions on these developments; the political elite enjoys the globalisation and tries to enhance and strengthen this movement by policies on open markets, flexibilisation of labour markets and knowledge and innovation. At the other hand we see a reactionary development both at the left as well as the right poles of the political field: international developments are fought by xenophobic actions. Neo-liberal innovative movement and reactionary conservatism act as opponents towards each other.

Lisbon goals

In 2000, the European council made the appointment that by 2010 the European community should be the most competitive and social-cohesive society. The member states agreed on these goals and set national policies to realise them.

Goals are detailed in less early school leavers, more graduates in technical

disciplines and more graduates from higher education. At the same time it was agreed upon the 12.5% of the labour force between 25 and 65 should participate in training and learning activities. The Dutch goal is even 20%. The Dutch ministry of Education decided to work collaboratively with other departments on new impulses for lifelong learning.

Within this hectic political scene, the European Union puts lifelong learning on the political agenda, as important part of the strategy towards a competitive economy. Also the national governments state lifelong learning as policy goal, but in many countries effective measures are still lacking. An important cause for this policy vacuum is unclear input-output rationalities behind the lifelong learning agenda. Lifelong learning is seen as the therapy for many diseases, but a clear vision on an effective social system is missing. Over time, we see a narrowing scope on only economic goals for lifelong learning: social and personal objectives are becoming less prominent in the political debate (although the new Dutch government is stressing again collective action for social cohesion). It is not very clear how a system for lifelong learning should be designed: we do not have a working social system for lifelong learning. The institutional set up (appointments on rights and duties; organising the articulation of supply and demand, balancing the public and private costs and benefits) needs still a lot of developmental work. In policy documents a simple recipe is strived for: lifelong learning is seen as going back to school again. A Closer analysis learns that lifelong learning needs other frames of reference than the existing frame for general education: there is less legitimacy for a common curriculum, the institutes college and school are not the logical executives for work related learning and the discussion on public and private benefits (and thus investments) is not ended clearly. We discerned four perspectives relevant for analysing the lifelong learning concept: goals, function, participants and system design issues. Hereunder we present shortly our lines of reasoning.

Goals

The first perspective points at the relevance of lifelong learning. Lifelong learning can serve several agendas and societal interests. Biesta (2006) joins Aspin (2001) in using a threefold goal settings for lifelong learning: social inclusion and development of citizenship; economic progress and development; personal development and enrichment. This leads to three motives for the development of lifelong learning:

- Economic motives around the development of a knowledge based economy
- Social-cultural motives for the development of a balanced society
- Personal motives for individual development.

Biesta concludes that over time, during the last three decennia, the scope of motives for lifelong learning (and adult education, which was used formerly to pinpoint this field) is narrowed to economic motives. More recently, European policy is broadening the scope again towards social cohesion.

Function

Under the umbrella of lifelong learning a large set of diverging outcomes is strived for. For some participants a second chance for basic goals is aimed at, because they do not fulfil basic prerequisites for societal and economic participation. This deals with both basic skills for labour market participation as well as entry demands for certain profession and jobs and also social-cultural outcomes for adequate citizenship. Related to employability, targets can be seen as reactive: workers and enterprises should invest in following S&T and market developments around them. In the frame of innovation and competitiveness is third cluster of targets can be discerned as the development of new skills and technology for a vital economy. So analytically we can discern three functions for lifelong learning:

- Preconditional learning: targeting on the development of basic skills

- Reactive learning; targeting on adaptation to technological and organisational developments
- Proactive learning: targeting on the development of vitalising new knowledge and skills.

Participants

Traditionally, the individual is central in the debate on learning. This is logical, because the individual is the only entity capable of learning: people build cognitive schemes and develop behavioural repertoire and people do that highly motivated or with disliking. Nevertheless, the social context of learning is stressed as determining learning: impulses for learning are stemming from that context and much learning is collectively. Besides the social character of learning, in the economic literature on learning several levels of learning are stated: learning organisations, learning regions and even learning societies are mentioned. This literature stresses the fact that (collective) learning processes can be organised more and less sophisticated: motivation, information entrees and sourcing and retrieving learning results can stimulate or inhibit lifelong learning. Also benefits and targets for lifelong learning can change when other levels of interests and participation are at the foreground: a personal agenda for learning can differ strongly from the company agenda, causing need for negotiation on investments in learning. So in the debate on lifelong learning we suggest at least four levels of participation:

- The learning individual as basic unit
- The learning community as the immediate context in which individual and collective learning takes place
- The learning organisation as the larger context, which is important in investment decisions
- The learning region, in which individuals and organisations are established and living and where local policy has its anchor.

System design elements

A fourth perspective on lifelong learning deals with the design of social systems and learning arrangements. This perspective deals with how lifelong learning should be organised societally. The educational infrastructure and institutional set up is not immediately operational for lifelong learning. Initial, general education in western countries is a well organised social system, in which goals, means and duties are well defined and organised. A general learning age, a common curriculum, a defined examination system, a system for educational inspection and clear public financial arrangements form the building bricks of the educational system. For lifelong learning, in most western countries except the Nordic ones, even no sketches of a system design are present. It is even questionable whether a heterogeneous phenomenon as lifelong learning is well served by a clear social system. For our analysis we asked for sub-questions within the design perspective:

- Programmability of lifelong learning in relation to informal learning processes at work and in communities
- Responsibility for lifelong learning, as it is divided over several actors and levels
- The organisation of educational supply
- Enhancing lifelong learning by stick and carrot measures \.

Conclusive remarks

From the theoretical analysis the conclusion arises that lifelong learning is not a simple and clear policy issue. It is not always evident that lifelong learning is the optimal solution for the discerned problem clusters. Lifelong learning can serve a broad spectrum of targets, seen from different functionalities. Also the leading actor is not always evident ; in many cases the individual learner is not "in charge", and learning processes are enhanced from organisational goals or local policy levels. The

learning individual, responsible for his/her own employability, often is not the real picture. It becomes also clear that the educational infrastructure is not automatically the example for the design of lifelong learning systems. The institutional arrangements in education can work out contra productive for lifelong learning. Characteristic for lifelong learning is heterogeneity: learning demands differ for different actors and levels, and the expected outcomes are not predictable, especially in the case of proactive, innovative learning. Policies for lifelong learning should be targeted at organising promising contexts for learning (enhancing the learning potential of the workplace, quality of labour and admittance to knowledge sources). The spectrum of lifelong learning varies from process-oriented, tailor-made support towards programmable and obligatory supply at the other side. Such a broad spectrum is not well served by single-measure policies. In order to get insight in the broad spectrum of needed policies, four case studies are carried out at the proactive pole of the lifelong learning spectrum. In the next section we will present the major outcomes of these study.

3 Proactive learning in care and industry

Four case studies

Especially proactive learning processes, targeted at innovation and vitality, seem to escape systemic regulation. Policies to support such learning are difficult to design; it is even questionable whether any policy would serve such learning activities. Four labour organisations are studied in order to get insight in the relations between innovation and knowledge management at the one hand and learning on the shop floor at the other. Two houses for elderly care and two industrial enterprises (plastics and copying machines) are studied by interviewing management and some employees and by studying documents and organisational reports (annual reports, internal policy documents). The result is a global impression of the organisation of proactive learning processes. Of course, this offers just a preliminary view: in order to generalise the outcomes a more systematic study is needed.

Organisational developments

In the care sector, a large shift is taking place from supply driven care towards demand driven care, in which care is strived for, which is tailor made for individual residents. Innovation in care is defined mostly by societal and political developments, but also technology plays a role (supporting devices, ICT). The care market is reasonably predictable, based on demographic statistics. Both houses anticipate on market developments (demand for differentiated care, geriatric developments, cultural developments) with measures targeted at improvement of working processes and raising efficiency. A new law in the Netherlands on occupations and professions in the care sector, regulates in a detailed way responsibilities and duties of employees on different levels.

The two industrial enterprises differ greatly. The plastic company operates within a niche market, delivering tailor made plastic tools and half products for other industries (eg. the automotive industry), based on existing technology. Innovation is taking place in two ways; at the one side the company is eager to apply new materials and technological combinations (the company reacts on external S&T developments), at the other side the company is looking for new niches and clients. External regulation comes from environmental and labour laws and rules. The copying machine company operates at a global market and invests much resources in own R&D. An interesting shift is the development from machine supply towards service supply: the company offers complete copying facilities to big client organisations (eg. a complete university campus).

Goals, functions and participants in lifelong learning

All cases stress the importance of lifelong learning. Economic goals play a major role: labour market and vitality of the company are important lemmas. All organisations try to link personal motives to company goals, because motivation is seen as an important asset of learning and because good labour is scarce. A balance between personal goals and company goals is seen as company interest. Although we selected the cases to investigate proactive learning processes, many of the observed processes are rather reactive. This is caused by the way these organisations manage their internal knowledge strategy. The general picture is that in each organisation a small nucleus is made responsible for external (knowledge) relations and for the translation of new knowledge towards internal processes. In the care houses, this responsibility is located next to the management function, whereas in the plastic company one member of the board (with a technical PhD) has a network of universities and research institutes. In the copying machine company, all employees of the R&D department have links with external knowledge sources. In all organisations, a small group funnels external knowledge and technology into the organisation and takes care of the translation to internal processes. Other employees are supposed to follow these developments through reactive learning and adaptation and to include this new knowledge into their behavioural routines. The four organisations use a slightly different strategy to enhance such reactive learning processes: *smoothly seducing* (guiding employees by developmental lines), *searching for movement* (creating levers for behavioural change), *challenging and teasing* (stimulating employees to co-design new developments) and *critical reflection* (enhancing “out-of-the-box” thinking). These are regulated processes to organise innovation and reflection of employees, without disrupting daily productivity. The “real” knowledge work, fetching new knowledge and translating it into innovation, is restricted to a small selection of employees; the other employees have to follow. So, proactive, innovative learning is designed at organisational level: the organisations have a more or less sophisticated knowledge strategy. On organisational level relations exist with the external knowledge infrastructure and with partners in the production chains (suppliers and clients). The copying machine company and one of the care houses stimulate larger groups of employees to have external links themselves. Reactive learning is organised partly collectively and partly individually. Formal and informal learning are alternating. Work meetings are important instances for knowledge exchange and the outline of new processes. Such learning and development is combined with formal courses and certificates, for which individual trajectories are set. Learning for participatory prerequisites, targeted at new jobs and promotion, is organised individually and is often related to formal courses within vocational or professional education. Legal regulations (eg. the law on care occupations) have impact on preconditional learning. In the plastic company there exist a large amount of low educated employees, although this does not mean that the work is low skilled: most of these skills are acquired on-the-job by learning by doing. Ageing personnel causes a problem: expertise is leaking from the company without renewal. So this company is eager to link to regional colleges and offers practical experience for students.

System design aspects.

The above sketch of proactive, reactive and preconditional learning within innovative companies offers some clues to line out system requirements for lifelong learning. For the programmability of learning it becomes clear the preconditional learning can be formalised according to the known set up of education. For reactive learning this is the case in much less extent: companies are striving for broader competences and skills in reaction on external developments. Learning activities are organised in-company in work meetings and workshops. Training supply is offered by the companies themselves or by suppliers with a high flexibility. Proactive learning is organised as a search process or a discovery tour on the external knowledge market:

fairs, seminars, conferences and study groups where knowledge has to be sought and brought.

Both the organisation and the individual have responsibility for learning. The company enhances searching and learning for vitality and innovation and challenges its employees to participate or at least to follow. Labour agreements are important (investments in training, time for learning, quality of labour). It is up to the employees to accept the challenge and to invest in own competence development. Career improvement and employability are also in the interest of the individual.

Educational institutes play an important role in preconditional learning. That learning is closely linked to the formal structure of courses and certificates. For reactive learning, the supply of educational institutes is often lacking flexibility, so private suppliers play a major role on this part of the training market. Also suppliers of new technology and machinery offer all kinds of training supply. For proactive learning, companies have to organise their own trajectories and external relations.

In the case studies financial resources are not mentioned. External developments, both in the knowledge infrastructure and on the labour market, force companies to invest in knowledge and skills of their employees. Resources form no obstacle, although they are not unlimited. A challenging and inviting mode of the company is an important asset for employees to participate in lifelong learning activities.

Conclusive remarks

Proactive learning for vitality and innovation is organised at company level. The company takes care of external networks and knowledge relations, in order to be able to find new knowledge easily and to import it into the organisation. Internally, this is restricted to a small nucleus of knowledge workers. This offers new chances for renewal of products and processes, for which all employees are assumed to train and learn for. Proactive learning at organisational level implies reactive learning on employee level. Preconditional learning for employability and career improvement, is only loosely connected to this vitalising process but is tightly connected to personnel strategies. Companies invest in relations with the educational infrastructure, for renewal of personnel.

The educational infrastructure is employed for preconditional learning; for reactive and proactive learning the companies demand a degree of flexibility, which schools and colleges are not able to deliver. The logic of education fits to the logic of preconditional learning, also because employability is partly externally oriented. For the design of systems for lifelong learning, the analysis of the cases learns that the accessibility of new knowledge is of greatest importance, just as tailor made supply of training and guidance to translate new knowledge into applicable work procedures and products. Broadening of competences and skills is more important than upskilling. Individual and company interests in investments in learning will have to be aligned. The collective benefits are central.

4 Skilled incompetence in SME's

Successful small companies may focus upon what is contributing to their success in a particular market and their human resources development may be concentrated upon helping staff consider how to make continuous improvements in how they operate. In practice, however, while such attitudes may seem exemplary they nevertheless lead to what Argyris (1990) called 'skilled incompetence', where the focus on doing current activities well can result in neglect of professional growth and development to the long-term detriment of the organisation.

Brown (2005) highlights how the success of small companies could partly depend on the way they handled, either explicitly or implicitly, two key challenges: how to focus upon, protect and develop their core competencies and how to avoid the gradual

development of 'skilled incompetence'. Case studies of ICT companies across six countries showed that companies were often quite good at protecting and developing their core competencies, even if it was not a formal goal of their HRD policies. Meeting the challenge of the development of 'skilled incompetence' (Argyris, 1990) was much more demanding. For some companies the current way of doing things, including the constant search for and focus upon technical development, meant they neglected more strategic considerations, including plans for the professional growth of staff and opportunities to reflect systematically on their ways of interacting externally.

Several effects of the accumulation of 'skilled incompetence' (Argyris, 1990) might be expected in an organisation that does not develop specific plans for professional growth. A company's small size allows fast knowledge sharing among people, ensuring less dependence on a single resource and improves role flexibility. Yet the company's model of investment on human resources should be developed in order to comply with conditions of both keeping key human resources and achieving long-term objectives. Moreover, the occurrence of significant reshaping of technological activities due to breakthrough events, or even to the effects of incremental innovation in the field, might cause unforeseen problems in an organisation which does not systematically reflect on its ways of interacting externally, its community practices, and its approach to applying technological solutions. In such circumstances public policy should be directed at offering support for apparently dynamic and healthy companies in looking at the broader horizon and considering the company as a unity – not only in terms of its individual members – and should take specifically into account its existing external and internal learning paths. That is, a focus should be placed upon the development of flexible expertise of employees in order to increase the likelihood that companies can themselves continue to adapt and innovate.

Such an approach should also be linked with expectations of new graduates joining companies. Rather than an expectation that HE should deliver graduates who have completed their intellectual development to the requisite level, it would be more useful for the development of a knowledge-based society to recognise that thinking in these terms is itself problematic. Additionally, public policy should seek to support the learning and development of staff in small companies that are apparently thriving, because it is at that time that support for further professional development is likely to be squeezed and a drift towards 'skilled incompetence' might be underway, with negative consequences for the development of a knowledge-based society.

How can a drift towards skilled incompetence be challenged? By the development of a flexible expertise that comprises two dimensions. First, the development of expertise should itself be viewed as a continuing process. Thus even if employees are able to produce competent performance in a range of more or less challenging work settings, there has to be a facility within teams or the workforce as a whole to go beyond this. From this perspective, it is interesting that some companies are explicitly using a developmental view of expertise that goes well beyond expecting technical proficiency and a commitment to continuing improvement. Thus some companies, working in technologically advanced sectors, who build up competence inventories of their staff differentiate between:

- Those who are technically able to perform a task but have very limited practical experience of actually doing so (e.g. could use in an emergency or, if necessary, for a one-off activity);
- Those who have successfully performed the task on a small number of occasions (e.g. could use if wish to develop their expertise further; in a support role or if time is not necessarily a key criterion);
- Those who have performed the task many times and under a variety of conditions

- (i.e. experienced worker standard – completely reliable);
- Those who have substantial experience but are also able to support the learning of others (i.e. they can perform a coaching or mentoring role);
 - Those who are world class, that is they are able to think through and, if necessary, bring about changes in the ways that tasks are tackled (e.g. could be chosen as a team leader for performance improvement activities).

The interesting thing here is that this approach to professional development recognises the importance of having a capacity to support the learning of others as well a capacity to change the way things are done.

Second, flexible expertise could be partly built around recognition of the importance of the integration of different kinds of knowledge. Professionals and other highly skilled workers often find that the most important workplace tasks and problems require the integrated use of several different kinds of knowledge, and this can be particularly challenging for those just 'starting out' in their careers. This is the real challenge: predominantly education-based routes and predominantly work-based routes will lead to the development of different types of knowledge, but in many occupations either will be insufficient as it is the combination and integration of different types of knowledge that is often the major challenge. From this perspective looking at the transition from one form of training to work is really focusing upon the wrong transition – the key transition is not from training to work, but from training to experienced worker status. This shift of perspective would enable people to look at immediate post-qualifying period as a time in which a great deal of learning takes place and to recognise that the degree of support an individual receives at that time could have more significance for their ultimate success than the type of pathway they followed in training. People early in their careers learn a great deal from challenges at work, provided that they receive support as required, because without this they feel overwhelmed and may start to lack confidence in their own abilities. Eraut *et al.* (2004) highlight how people learn most effectively when a virtuous circle of confidence, support and challenge is created.

So the challenge of skilled incompetence may be overcome if a more developmental view of expertise is embraced and employees are supported in the combination and integration (and development) of different types of knowledge.

5 Towards conclusions on the development of flexible expertise

Two variants for lifelong learning

Two dimensions are crucial to understand the concept of lifelong learning; formality and planning of learning.

Analysing preconditional learning, reactive learning and proactive learning makes clear that the formality of learning is a distinctive feature. Preconditional learning can be organised based on the formal structures of the educational system: defined content anchors the curriculum and value of learning both for suppliers and participants in training. The entrance to the labour market and specific jobs can be formalised through diplomas and certificates. The civil value of courses is depending on its formality. At the other side, reactive and proactive learning for vitality are difficult to catch in formal structures because the content is by definition not known at forehand. Also the outcomes of learning are not valued as admittance to jobs and the labour market but as tools for economic survival of the company. Civil value is not a relevant criterion for vitalising learning. Only in the long run, when innovations become regular procedures and products, the knowledge and skills involved can become part of the canon of specific jobs and by that valued as essential assets of

renewed occupations and professions. In that case, innovative knowledge becomes part of the occupational canon.

The second analytical dimension regards incidental versus planned learning; both formal and informal learning consists of planned and incidental learning processes. Within the formal educational trajectories work based learning is the best-known example of incidental learning. Also APL, appraisal of prior learning experiences, is a recognition of the role of incidental learning in formal trajectories. Within learning for vitality, proactive learning is the most incidental variant of learning whereas reactive learning has more structured aspects. The outcomes of proactive, organisational learning structure reactive learning for other employees.

So lifelong learning turns out to be a hybrid concept, with each an own rationality and goal-means reasoning. Employability and upskilling benefit from a system in which qualification structures and job profiles form an important input; APL and dual trajectories fit into a regulated system of diplomas and certificates as an expression of upgrading. An institutional set up, anchoring in the educational system seems to be reasonably adequate for preconditional learning. Preconditional learning can be organised within a context of certainty, and rewarding the obtaining of formal results can enhance participation. Individual benefits are prevalent to company benefits, so the key actor for preconditional learning is the individual participant.

On the contrary, proactive and reactive learning for vitality benefit from flexibility and tailor made courses within a context of uncertainty. Only rarely, learning outcomes are transferable into certificates, but should result in useful knowledge and competitiveness of the firm. The quality of learning processes is more important than specific learning outputs. External networks and collective learning form important ingredients. Company benefits prevail individual benefits, so the organisation is the key actor for vitalising learning.

The hybrid feature of lifelong learning urges multiple policies to enhance lifelong learning. Preconditional learning asks for bonus-malus facilities oriented at the individual learner, whereas vitalising learning asks for process support around innovating companies: accessibility of new knowledge and technology is a key factor as is the quality of labour. A new policy and research agenda should use the distinction between preconditional learning and vitalising learning.

Flexible expertise in developing enterprises

Still to be filled in.

References

- Argyris C. (1990), *Overcoming Organizational Defensive Routines*, Needham, MA, Allyn-Bacon. (see also: Argyris C. (2004), *Reasons and Rationalisations. The Limits of Organisational Knowledge*, Oxford, Oxford University Press).
- Aspin, J. D. C. (2001). *Lifelong Learning: concepts, theories, and values*. SCRUTEA, University of East London, SCUTREA.
- Biesta, G. (2006). "What's the Point of Lifelong Learning if Lifelong Learning Has No Point? On the Democratic Deficit of Policies for Lifelong Learning." *European Educational Research Journal* 5(3&4): 169-179.
- Boerlijst, J.G., Van der Heijden, B.I.J.M., & Verhelst, N.D. (1996). *The measurement of expertise*. Paper presented at the Fourth Asia Pacific Conference on Giftedness, Jakarta, 4-8 August 1996. Theme: Optimizing Excellence and Human

Resource Development. Organised by the University of Indonesia, Faculty of Psychology and the Indonesian Foundation on Education and Development of Gifted Children, 4-8 August 1996.

- Brown, A. (Ed) (2005) Learning while working in small companies: comparative analysis of experiences drawn from England, Germany, Greece, Italy, Portugal and Spain, SKOPE Monograph No 7., ESRC funded Centre on Skills, Knowledge and Organisational Performance, Oxford and Warwick Universities.
<http://www.skope.ox.ac.uk/WorkingPapers/SKOPEMON07.PDF>
- Eraut, M., Maillardet, F., Miller, C., Steadman, S., Ali, A., Blackman, C., Furner, J. (2004) Learning in the Professional Workplace: Relationships between Learning Factors and Contextual Factors, AERA Conference Paper, San Diego.
- Feltovich, P. J., R. J. Spiro, et al. (1997). Issues of expert flexibility in contexts characterized by complexity and change. Expertise in context; the human and the machine. Menlo Park/Cambridge/London, AAAI Press / The MIT Press.
- Illeris, K. (2002). The three dimensions of learning. Contemporary Learning Theory in the Extension Field between the Cognitive, the Emotional and the Social. Fredriksberg, Denmark, Roskilde University Press.
- Merx-Chermin, M. and W. J. Nijhof (2005). "Factors influencing knowledge creation and innovation in an organisation." Journal of European Industrial Training 29(2): 135-147.
- Van der Heijde, C.M., & Van der Heijden, B.I.J.M. (2006). A competence-based and multidimensional operationalization and measurement of employability. Human Resource Management, 45(3), 449-476.
- Van der Heijden, B.I.J.M. (1996). Life-long expertise development: goal of the nineties. Book of Proceedings of the Fifth Conference on International Human Resource Management. Hyatt Islandia San Diego, California, USA, 24-28 June, 1996.
- Van der Heijden, B.I.J.M. (1998). The measurement and development of occupational expertise throughout the career. A retrospective study among higher level Dutch professionals. Ph.D.-thesis. University of Twente, Enschede, the Netherlands. Enschede: PrintPartners Ipskamp.