Lifelong Learning and New Working Environments – Strategies for Companies in the 21st Century

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Abstract: This paper presents various up-to-date findings on Life Long Learning strategies on SMEs from studies and EU projects undertaken or coordinated by the authors. SMEs are caught up in a specific LLL-dilemma: to be competitive they need highly qualified innovative staff, but at the same time they face problems in implementing LLL: lack of strategy and resources. This paper proposes various approaches to solutions in these fields, such us: strategic approaches based on SME specifics, Communities of Practice, the SME typical connections between formal and informal learning, learning and knowledge-management, learning and workplace environment, regional clusters as well as the specific contribution web 2.0/education 2.0 can make concerning these issues.

Keywords: E-Learning, life-long learning, working environments, SME, working environment

1. INTRODUCTION

International social and economic change processes like globalization, market competition, technological innovation and crises such as the current world economic recession, deeply affect the situation of companies and require adaptation on many different levels. The most important change is the shift towards a social and economic paradigm where choice and acquisition, management and transfer of the right kind of knowledge makes or breaks a company or even a product (Hamburg, 2009).

In this context learning has to be looked at in a different, more comprehensive and integrated way than has been the case so far. It is no longer sufficient to see it as a separate field of activity centred on new learning technologies, methods and strategies. Rather it has to be understood as intrinsic to the working environment overall and as a component of a life long learning (LLL) strategy. Hence, new designs for working environments are required as well as new forms of cooperation and learning in and between companies. These new approaches have to be focused on economic effectiveness, innovation, sustainability and human-oriented business practices.

In comparison to conventional training on line learning methods, commonly referred to as E-Learning, with their flexibility of time and place have objectively many advantages for companies in this context.

In this chapter we discuss results of European studies and projects coordinated by authors of this paper. First we look at ARIEL (Analysing and Reporting on the Implementation of Electronic Learning in Europe) which was an international joint project funded by the European Commission in the framework of its eLearning Initiative. The project investigated online learning particularly E-Learning supply for SMEs with regard to didactic approaches, benefits and fields of application. The results show that online learning activities in companies i.e. the intensive use of E-learning often face a series of problems particularly in small and medium sized companies (SMEs). SMEs have needs arising from a variety of challenges in their daily operations. But SMEs are socially and economically important, since they represent 99% of all enterprises in the EU, provide around 65 million jobs and contribute to entrepreneurship and innovation.

Recent studies in different European SMEs show that about 10% of these companies quoted lack of skills as a barrier to their growth. This highlights the link between training and sustainability. For an SME to manage and sustain its business whilst engaging in training can be very difficult. Since many SMEs do not have a formal learning culture; their priority is to survive. The benefits of the training to the business have to be very clear and measurable. Their resources to build a LLL strategy are very limited. One important aspect we discuss in this chapter is that many companies particularly SMEs are not ready for LLL in terms of their organisational, technical and human resources.

Secondly, some issues related to the design of new working environments are presented, particularly the aspect of learning in new working environments. This is followed by a presentation of the concept of Communities of Practice (CoPs) as an interesting approach to cooperative learning to develop competencies also for new woking environments by using online methods particularly based on Web 2.0. ICT based CoPs could contribute to improving the market of online education.

2. ONLINE EDUCATION IN SMEs – AN EUROPEAN OBSERVATORY

2.1 Some Research Findings

SMEs are diverse and have specific organizational needs and characteristics. Typically they depend on a limited number of people (often owners and managers are one and the same person) and there is almost always a close relationship to customers and business partners. SMEs focus on a small range of products or services and these are sold mainly on the local domestic market. Many of them operate flexibly, not based on strict observance of regulations. Their vision is bounded by the skills, horizons and experience of the founder, by the pressure of day-to-day management and tight resources. In regard to staff training and learning, most SME managers expect their staff to acquire new skills and knowledge as part of a collective responsibility for the company's profitability and growth (http://thecknownet.com). Foremost, is their concern to avoid jeopardizing company productivity and its ability to deliver on time. Indeed, the impact on the workplace and the business when staff are absent due to training cannot be over-estimated. In comparison to conventional training, the use of online learning, particularly E-Learning methods with their flexibility of time and place have objectively many advantages for SMEs. By using Web 2.0 services, E-learning (2.0) has the potential to become far more personalized, social and flexible. E-Learning 2.0 takes small pieces, combining the use of discrete but complementary tools and Web services – such as blogs, wikis, and other social software – to support ad-hoc learning communities. Web 2.0 facilitates a new level of interaction that makes it easier to collaborate and share information. It also helps companies to better understand market changes. In E-learning 2.0 the driver is the worker (learner), the users can create the content, individually or together. Using the familiar tools of Web 2.0 everyone can be a learner or teacher; many barriers to online training are removed.

But a survey carried out for CEDEFOP (2003), other studies (Atwell *et al*, 2003) and the ARIEL project - ARIEL (Beer *et al*., 2006), show that SMEs use computer for many activities but not for online learning. Causal factors include issues such as company training needs not being identified systematically, but being picked up mostly through practical experience. Many problems perceived by SME managers are based on misconceptions or prejudices borne out of a general suspicion of an educational process which is not teacher and face-to-face driven. Decision makers in SMEs are afraid of high costs and overheads for content maintenance. Last not least many SMEs do not have the necessary infrastructure for online learning. Mostly, staff will not be allowed to take time off for study, and very often will not be funded to undertake further training (Atwell *et al*., 2003, Hamburg & Lindecke, 2005).

Another of ARIEL themes was the evaluation of the impact of past EU programmes in the field of electronic learning. On this basis ARIEL built scenarios of the future development of E-Learning in Europe and developed recommendations for SMEs, trainers and policy makers. ARIEL was coordinated by the IAT with cooperation partners from Ireland, Italy, Hungary and Romania. Findings of the project ARIEL show that SMEs are interested in E-Learning if they see an explicit training benefit for those employees who would otherwise not have any training. Additionally, SMEs demand a high degree of practical usability of E-Learning for their daily tasks (Beer *et al*., 2006).

In discussions in ARIEL on the relevance of further education, most employees found it important to achieve skills for their present and future work. On a six-step scale of importance, further education gets a value of 5.1. The motives for training are mainly personal interests of the employees, as shown in a recent survey done by the German Ministry of Economy and Technology (BMWT, 2008). Mostly, employees prefer learning schemes with relatively low demands of time and effort, e.g. on-the-job-training, and informal learning as in discussion with colleagues or supervisors. Learning on demand can be seen as the standard of continuing education on the job. But only 5 percent of the respondents were users of E-Learning. 40 percent of all employees know the terms "E-Learning" or "Tele-Learning". More than half of the employees interviewed have no idea about contents and methods of online learning. When informed about online training methods, about half of the respondents showed interest in it. Most of them prefer Blended Learning or CDs (BMWT, 2008).

Blended learning, which may be a good solution for facilitating the transition of SMEs to an "online" learning culture, is defined as a learning solution, which implies a mix of the following:

- Varied delivery media, e.g. ICT-based/online plus non-technology-based (such as face-to-face),
- Varied learning events e.g. individual, self-paced plus "class" learning events.
- Electronic performance support e.g. instruction based and knowledge management support.

Combining different delivery modes in learning has the potential to balance and optimize the cost and time for developing and deploying the learning program. There are different approaches to using blended learning in a SME (Hamburg *et al*., 2003, Hamburg & Lindecke, 2005):

- To blend individual, self-paced learning with interactive trainer support in face-to-face contact, e-mail, discussion forum, etc. to develop individual knowledge and skills,

- To blend different delivery media and to organize learning events, in order to develop specific behaviour and attitude,
- To blend different delivery media and to organize learning events with mentoring to develop workplace competence.

Every company has established a learning culture. It is the way in which the organization has taught its employees to interact with computers and with each other. Two aspects are important in a learning process: the content being presented and the skills to master and apply that content once the learning experience is over.

Findings from research show contradictory results on online/blended learning in companies. Market analysis carried out by the network LERNET indicates that many enterprises have taken the step from isolated training to an integrated approach including online learning. Some indicators can be found which show that SMEs are nowadays more active in E-Learning due to technological innovations, specialised providers and programs like LERNET (BMWT, 2008). Recommendations of LERNET are that providers should take into account the close connection between knowledge management and online learning. Research done by the Nordmedia shows that implementation of a training concept in enterprises, particularly in SMEs needs new ways of thinking. Investment in knowledge development is still widely seen by managers as expenditure rather than investment. New training methods and E-Learning could open doors for continuing education because it is flexible and efficient (Nordmedia, 2004). Despite such hopeful signs, SMEs still do not seem to be very interested in online learning, because most E-Learning products on the market are standard products and not adapted to the specific needs and demands of SMEs. For big enterprises it is possible to use standard products for some tasks and goals while acquiring products tailored to specific needs, mostly in cooperation with an E-Learning provider. For SMEs this strategy is too expensive. One approach to solve this problem is so-called "Mass Customization", for example by rebuilding existing E-Learning materials into flexible modules.

So, which are the pros and cons found by ARIEL for developing an online training program for an SME? The advantages of online learning must outweigh the disadvantages for both the learner and the developer to make the conversion process cost effective. Travel for learners, costs from loss of productivity, training location fees and instructor costs must be weighed against the cost of redesigning course material into an interactive experience that engages learners. The amount of face-to-face interaction critical to the course must be considered and whether this can be replaced by online collaborative meetings and activities. If an online course can provide a rich and engaging experience for the learner and will have repeated uses (with updates), the conversion is an investment worth making.

Essential factors to consider are (1) the live interaction requirement, (2) cost factors, (3) skilled staff/consultants and (4) re-education of learners to online learning taking into consideration the learning culture of the organization. Course conversion, however, does not make a complete online learning program. Custom-developed and off-the-shelf courses combined with some traditional classroom-based courses in addition to conversion courses will create a blended e-learning solution "Intelligent learning processses" have to take into account:

- The individual learning objectives of the learner,
- The individual and social working and learning situation of the learner,
- The individual learning biography of the learner,
- That the learners have to be responsible for their own learning process and that E-Learning should not take the responsibility away from the learner." (European Commission, 2003)

The findings of ARIEL were elaborated further in the EU project SIMPEL, also funded under the European eLearning initiative and coordinated by the authors. SIMPEL partners from Germany, The Netherlands, Hungary, Ireland, and Italy, have completed comparative analyses of E-Learning projects. Results of these analyses and other projects, also of national seminars organized by the SIMPEL partners show further aspects, which have to be considered when implementing E-Learning as part of a sustainable training strategy in an SME. These include: the identification of needed skills/competences, adequate tutor and technical support for education, integration of online learning with more traditional forms of learning (blended learning), creating learning infrastructures and an innovative learning culture and taking economical aspects into consideration.

One of the SIMPEL findings was that an exact description of the company situation at the time of introducing E-Learning-based training models was missing in many SMEs and also in big companies. It can be realized through a methodical evaluation of company readiness for online learning. E-Readiness that is the ability of the organisation to pursue value creation opportunities facilitated by the use of the internet for different tasks, for communication and cooperation. A high degree of E-Maturity of the organisation (i.e. a high degree of the use of the Internet) can contribute substantially to the readiness for online learning. In the following we describe some existing E-Learning readiness models.

2.2 E-Learning Readiness Models

The Economist Intelligence Unit (2003) cited by Psycharis (2005) published some models of E-Learning readiness. Rosenberg (2000) identified the following four factors - the "Four Cs for Success": Culture, Champions, Communications, and Change. He considers corporate-policy factors as very important for the success of an E-Learning project: an open learning culture, manager support of the project, successful communication of the project and its advantages for the staff and a change process which integrates these factors of success into further development of the organization and of the staff. These elements have to be clarified before launching a

project in order to assure its success. He developed 20 key-questions which were classified in the categories: entrepreneurial readiness, changing nature of learning and E-Learning, value of teaching and information design, management of change, re-invention of educational organization, industry of E-Learning and personal commitment. Chapnick (2000) considers that the main readiness factors for the implementation of E-Learning are the psychological readiness, the sociological readiness, the environmental readiness, the readiness of the human resources and the economic readiness. Broadbent (2002) affirms that the successful implementation of E-Learning in an organisation requires right people, right place and right resources. The following factors are considered by Worknowledge (2004) as important when implementing E-Learning: the readiness of the staff, the readiness of administration, the economic readiness, the environmental readiness, the technological readiness and the readiness of the culture. Borotis and Poulymenakou (2004) suggest seven factors that should be checked before an E-Learning solution is adopted, including entrepreneurial readiness, readiness of content, technological readiness, readiness of culture, of human resources and economic readiness.

We would like to add two models of E-Learning readiness: Habermann and Kraemer (2001) identified (similarly to Rosenberg, but more from a methodical point of view) five typical problem fields, which can influence the strategic and operative planning. These are problems of complexity, information, resources, decisions and of coordination. Stacey (2001) preferred professional-content aspects. His "Big 8 questions to Answer in Planning and Implementing E-Learning" contain questions of organisational and didactical processing as well as some for measuring success. Psycharis (2005) tried to correlate the factors of E-Learning readiness mentioned in the literature and to classify them into three major categories (Figure 1):

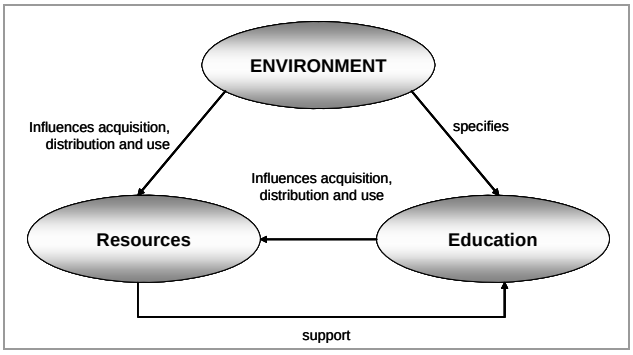

Figure 1: Criteria of Readiness (Source: Pycharis 2005)

All these models try to group the content that belongs to specific areas (e.g. technological readiness, human resource readiness, etc.), but the content of the categories of the different models are appreciatively the same. The authors regard E-Learning projects in view of required organisation development and integration, rather than from the technical implementation processes. The models add value in sorting the factors that need to be investigated before an E-Learning project starts. Some observations within these models particularly when applying them to SMEs are the following:

- Before E-Learning readiness should be measured, a decision should be made if this is the best choice of training delivery or not.
- Special pedagogical requirements and face-to-face contact are not to be neglected.
- Organisational readiness is a difficult problem for SMEs particularly for small business.

The models should be applied to the complete E-Learning process from planning to implementation and evaluation. Not only managers should answer the questions of these models, but also trainers and specialists..

2.3 Our Model for Evaluation of Online Readiness

Readiness for E-learning (or LLL including E-Learning) is an acurate description of the organisation, technology, human resources and professional content in place in a company at the time of considering the implementation of an LLL/-Learning project. This analysis is made (and to a certain degree standardized) by using a questionnaire. In our model a list of questions for the evaluation of readiness for online learning has been provided in a reference catalogue taking into consideration the main criteria Organisation & Management, Technology & Services, Staff & Human Resources. The reference catalogue can be adapted and applied in an organisation to create a profile of the company containing statements in all these categories. The catalogue can be complemented with questions about E-Maturity of the company. The data thus collected should be evaluated by a consultant of the company and further refined in direct discussions with the staff and management of the company. The next step is the use of the catalogue for building a Life Long Learning (LLL) strategy including online learning. Here is our catalogue:

Organisation/Management

(a) Strategic and economic readiness

- Which are the strategically objectives and reasons for implementing/using of online Learning?
- Is the company economically readiness for online learning (i.e. financial resources available for E-Learning)?
- Are the advantages of E-Learning for the company clear?
- It is the E-Learning market known?

(b) Entrepreneurial readiness

- Are the requirements necessary for a successful implementation of E-Learning fulfilled?

(c) Readiness of culture

- Has the company an online oriented culture?
- Is the learning culture of the organisation an innovation supporting one?

(d) Management readiness

- Does the company management support the implementation of E-Learning?

Technology, Services

(a) IT readiness

- How is the IT equipment and connection of the workplaces with the Internet?
- Are IT and Web used for learning and communication by staff?

(b) Readiness of learning environments

- Which are the existing online learning platforms in the organisation?
- Do virtual learning communities exist in the organisation?

(c) Readiness of content

- Is the content to be learned suitable for online learning?

Staff/HR

(a) Trainees' readiness

- How are the IT skills of the target groups?
- Are they motivated and ready to learn?

(b) Trainers, tutors readiness

- Are trainers, tutors educated for online learning?
- Which are the most used vocational training forms in the company (formal, informal, etc.)?

(c) Readiness of vocational training plans and strategy

- Which are the plans and tools for the staff development in the company?
- Do exist long term training strategies based on online learning (E-Learning) in the company?

The catalogue for online readiness should be well balanced, not containing too many details that should be clarified only in the next phases of the building of a LLL strategy, because this would minder the response rate.

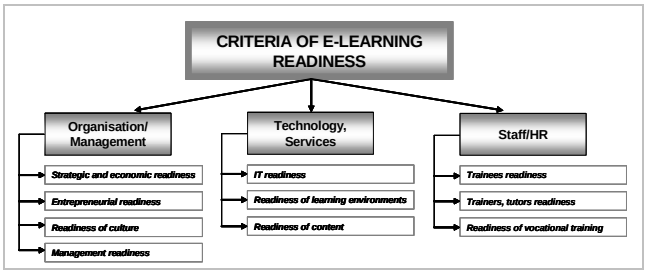

Figure 2: Criteria of E-Learning Readiness

2.4 Developing LLL Strategies

For many small companies the next step is to develop an implementation plan. The general assumption is, that the bigger the company the more detailed a LLL strategy can be. In the following we present an approach for such "optimal strategy". Each company can choose the suitable/needed steps (Attwell *et al.*, 2003; Beer et al., 2008).

Step 1: Analysis of company situation and needs of qualification

In the initial phase the business goals and the company situation, the difficulties the company has to achieve these goals should be analyzed first. The determination of the qualifications needed by the staff to solve the difficulties should be also done in this phase.

Step 2: Analysis of online market

Before the development of a LLL strategy an analysis of the online market by contacting providers, "drivers" of vocational training processes, a network etc. are required.

Step 3: Concept

The most complex phase of a LLL strategy is the conception stage. Suitable offers and services for the qualification needs required by the work tasks have to be found, learning contents, forms and media; the relevant knowledge and data flows have to be determined in this phase.

Step 4: Planning

The planning phase facilitates the implementation and defines the LLL measures as well as the time, the actors, the technological and organisational infrastructure and the tools needed for an efficient realisation of these measures. The preparation of a financial (business) part of the LLL model providing a framework for the economical dimension of the LLL strategy in the company and linking the planning with the process level of the implementation is advisable. It reduces complex events and relationships to achieve a clear focus, thus making learning efficient and providing a basis for future decisions concerning LLL activities in the company. Support by different national and European aid programmes should be considered.

Step 5: Implementation

LLL solutions, which correspond to the learning culture of the company will be produced (or purchased and adapted) and introduced in the implementation phase. The implementation of LLL strategy by intensive use of online learning should be supported by internal marketing measures in the company. A successful transferring process is important for the efficiency of the online learning measures that means the trainees can use what they learn for their work tasks.

Step 6: Evaluation and improvement

In the evaluation phase the company should found out how effective and financial efficient the training was. A complete evaluation concerns human and financial resources, developed measures, participation, changed knowledge, behaviour, competences and expectations of the participants to the LLL programme, practical changes in the company. Different methods of evaluation should be introduced not only after the implementation phase but also earlier i.e. in the planning stages or in the transfer process. Necessary improvements should be done at the LLL strategy after its evaluation. At the evaluation process the norm ISO/IEC/19796-1/2005 has to be considered which framework to describe, compare, analyse, and implement quality management and quality assurance approaches.

We applied the above ideas within the activities of the EU project SIMPEL involving researchers, higher educators and other training providers, SMEs, E-Learning experts and providers (Hamburg *et al.*, 2008). Comparative ana-

lysis of the results of other projects undertaken by the SIMPEL partners and our results of national seminars show aspects, which have to be considered when implementing E-Learning as a part of the LLL strategy of the company if it is to be sustainable:

- Identification of needed skills/competences which could be achieved by using online learning (E-Learning),
- Researching online learning market,
- Readiness for online learning,
- Adequate tutor and technical support for education and integration with more traditional forms of learning, learning infrastructures,
- Organisational perspective,
- Transfer of knowledge,
- Economical aspects,
- Quality and (self) evaluation criteria.

3. LEARNING FOR TOMORROW WORKING ENVIRONMENTS

3.1 Workplace Design

"Predicting the shape and character of the workplace of the future is a messy and difficult business. Despite the ubiquity of some trends, and the convergence of at least some practices, workplace will continue to be extremely diverse." (Hall, 2006)

To put these findings on learning in a wider perspective it is useful to consider general issues of the workplace and to define requirements on workplace design from the point of view of SME learning needs. Workplace design supporting new work modes in the knowledge economy plays an important role in the business performance of a company. Results from the Gensler 2000 Workplace Study (http://www.gensler.com/) show that top-performing companies are embracing a fundamental restructuring of work through workplace design that is based not primarily on individual "heads down" work but on collaboration, learning and socialization: "The value of focus work is commonly understood, but there's clearly a competitive advantage for companies who see how collaborating, socializing and learning add value to employee and business performance" said Diane Hoskins, Director at Gensler. Their research also shows that 36% of the average office is ineffective or ill suited for the activities of today's knowledge workforce. Workplace design has to take into account the demands of how work has changed in recent years. Key trends in the workplace changes identified by Hall (2000) and discussed by other authors are:

- Work intensification, i.e. the growth of workers especially professionals and managers (Watson et al, 2003) working very long hours. It was determined by intensified competition as a consequence of globalization, demands on all organizations to achieve greater productivity, etc.
- Labour flexibility i.e. the demand to end the work (day, month, year) when the projects are complete,
- Increasingly rigid and disciplined management of labour; it seems that recent trends in the management of labour do not create opportunity for autonomy and creativity and create insecurity.

These key trends are important in order to understand future demands for skills and to develop concepts for achieving these skills. Expected results of these trends are:

- Changing of organizational structures to support new methods of work and collaboration,
- Measures for flexible work arrangements to support project work, which are socially equitable,
- Work settings that support present and future dynamic ways of working,
- Demand for knowledge workers and for knowledge work is less characterized by routine and more by sharing, acquisition, creation and use of new knowledge,
- New competences and innovative approaches to learning in working life, for example using more online and Web 2.0 methods,
- More employees with higher qualification for knowledge work,
- Diverse and often discontinuous career paths
- More people working longer hours, particularly in complex management positions
- Emergence of organisational and social networks such as CoPs which support knowledge sharing and learning.

The Gensler (2008) survey makes evident that designing a workplace to support the right proportion of collaboration, learning, socialization and understanding how these modes add value to employee and business performance is a key differentiator between top-performing companies and average ones. Higher workplace effectiveness is a strong factor in attracting and retaining talented people. Results of the survey show that this factor is almost three times higher when workplace effectiveness rises above 80%.

The future of the workplace and its diversity in today's world of increased organization is of interest for people, governments, businesses and organizations, including international ones. With regard to workplace diversity in companies, its management is essential as global organizations expand into transition economies. It is desirable to associate it with policies and practice to recruit and develop employees from diverse social groups (i.e. people with disabilities, aged people) and cultures, to open up new and emerging markets rather than relying on a narrow section of the labour market.

Particularly in SMEs, which are less innovative, managers need to understand that the workplace is no longer a place to employ people, produce goods and services and adapt to change when it is forced upon the company. Rather the workplace is a dynamic environment and managers have to have sufficient skills to modify workplace practices and procedures "to create shared perceptions that support innovation and entrepreneurship" (Robinson, 2008).

The difficulty is in overcoming lack of knowledge and resources. Most fields of expertise are required and this it too complex for any one person to master. Collective intelligence must be brought in to help to solve important problems. This is why CoPs seem to be promising in creating suitable environments for SME managers and staff to share knowledge, particularly "tacit" (implicit) knowledge which is not codified in documents or explained in formal settings.

The next aspect we consider is the connection between learning, work and competence development for new working environments. It is known that nowadays most people have to be prepared to change jobs and careers several times in their working lives. To master this, one has to accept the need for Life Long Learning (LLL) and to use new technologies. The "what to be learned" changes its nature and has to be updated quickly, further developed, reorganized in order to be used flexibly at the correct moment, even in unexpected contexts. In other words, people have to be prepared to adapt fast to new working environments (Illeris, 2004; Becket & Hager, 2002). The question is which methods and technologies should be used to provide learning to achieve vocationally oriented competencies in company work places and in networks/communities (practice learning).

3.2 Learning in Working Life

Figure 1 presents a model of "Learning in Working Life" (Illeris *et al*, 2004). It contains two different elements: the technical-organizational learning environment, i.e. work content, work organization, technology, qualifications and the social-cultural learning environment, i.e. social networking and other communities, learning cultures, communication.

An important factor in this learning model is the interactions between workplace practice and the learner's work identity and the fact that learning takes the character of competence development based on this interaction. There are different approaches to learning in working life. One is the industrial sociological approach. This is based primarily on the qualifications needed by employees to carry out a particular job. It includes a high degree of "general qualification" but also "organizational learning" (Argyris & Schön, 1996).

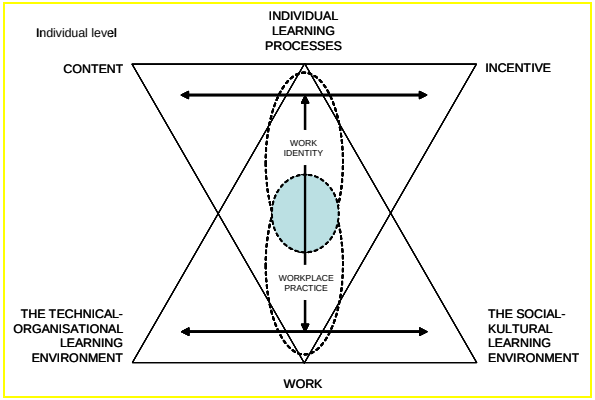

Figure 3: Learning in Working Life
(Source: Illeris *et al*., 2004)

The second approach focuses on the workplace as a learning environment and is known also as "learning organization" (Senge, 1990). It is not clear by using the learning concept introduced by Senge in the book about "the fifth discipline" if the organization can learn – the concept has more to do with management and sometimes with smart formulations than with learning (Illeris, 2008). In this paper we refer to the approach of CoP promoted by Wenger (1998, 2002), which we find very suitable for achieving the objectives of the SIMPEL project aimed at SMEs and for learning to design new working environments. This approach is mainly oriented towards the workplace as a focal point of learning. CoPs offer new opportunities for knowledge sharing and learning processes by using new forms of interaction in teams and in voluntary contact between the actors.

Furthermore, we are interested in learning as a competence development option and the use of online learning and web 2.0 advantages for knowledge intensive work and future working environments. Additionally we look for integrated approaches like CoPs to improve the marketing of online further education in companies through cooperation of different practitioners.

4. CONCEPTS FOR COMPETENCE-BUILDING & IMPROVEMENT OF ONLINE EDUCATION MARKETING

4.1 Community of Practice

Nowadays the concept of competence has a central position and captures what is essential in relation to education and training. It relates to how a person, organization, etc. is able to perform in a determined situation or context while taking into consideration the globalizing society. The Danish psychologist Jorgensen gives a useful definition:

"The concept of competence *refers to a person being qualified in a broader sense. It is not merely that a person masters a professional area, but also that the person can apply this professional knowledge – and more than that, apply it in relation to the requirements inherent in a situation which perhaps in addition is uncertain and unpredictable. Thus competence also includes the person's assessments and attitudes, and ability to draw on a considerable part of his/her more personal qualifications".*

Hence, it is important to maintain a broad understanding of competence and to use it as a point of departure for a better understanding of what learning efforts should be oriented to in present and future work, how up-to-date competence development can be realized for different people according to their needs, within given possibilities in and outside of formalized, institutionalized education programmers. In the triangle in Figure 2 a holistic concept of learning is shown, in which skills, mental and bodily balance and social integration are developed simultaneously to achieve functionality, sensitivity and sociality.

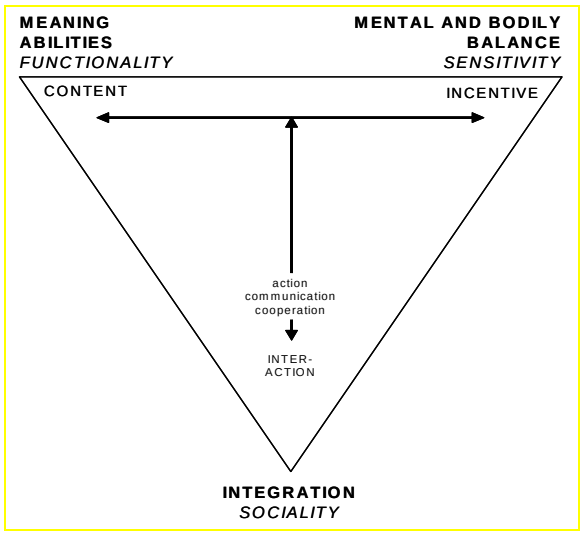

Figure 4: Learning as Competence Development (Source: Illeris *at al.*, 2004)

The social, economical and technological changes that foster competence development in connection with LLL require a new concept of relations between learning and education with an increased focus on knowledge sharing and informal learning possibilities outside educational institutions, fostering cooperation and using new technologies. One of the approaches, which seem useful in this respect, is Communities of Practice (CoP). Some of the main characteristics of CoPs are the following:

- A shared domain of interest of its members, their commitment to this domain and a shared competence that distinguishes members from other people;
- Common ideas, joint activities. Members engage in pursuing their interest for the domain and build relationships that enable them to learn from each other;
- Common practice because members of a community are practitioners with different levels of expertise. They develop a shared repertoire of resources e.g. experiences, tools, ways to solve problems, a knowledge base of best practices.

Therefore, CoPs consist of voluntary members who share knowledge, ideas and interests, and act as mentors for each other; they offer new opportunities for knowledge management and learning processes by using new forms of interaction between teamwork and loose contact between the actors (Hamburg *et al.*, 2008).

At present most European SMEs act alone in facing their training problems. It seems to be a successful suitable solution for SMEs to build communities of practice to share knowledge, to apply best practices in designing workplaces and to develop business-oriented models of training. Such forms of co-operation would stimulate new experiments; new actions and new directions for learning, and especially the kind of informal learning most SMEs already have experience with such as in-company apprenticeships, methods for introducing new employees to the shop-floor or practical demonstrations or instructions of new equipment.

New developments in ICT support the improvement and networking of centres for acquiring knowledge by interconnecting virtual spaces and campuses, the networking of universities, training centres and cultural resource centres. This kind of social and technical networking favours exchange of experience, of good practices in education and continuing education and helps improve these processes in many European countries. These open broad avenues for building virtual CoPs (VCoPs) not only within companies but especially across companies and other organizations.

An important aspect is collaboration on the basis of Web 2.0 applications and methods. On the one hand they seem to be very promising for their ease of access and their profound social orientation. On the other hand, it is not yet entirely clear, which Web 2.0 applications are specifically suitable for the purposes of CoPs for SMEs. Evidently, Wikis and forums are very useful for creating knowledge bases cooperatively or for discussion. It is less evident how to use big social networks such as Facebook, Twitter or Second Life profitably. Currently research is underway by the prestigious Frauenhofer Institute in Germany and the Agency Cosmo Code to look into the use of Web 2.0 in manufacturing SMEs (http://idw-online.de/pages/de/news317471).

In designing learning projects or CoPs or any other project to manage change, the specific constraints of SMEs have always to be taken into account. Learning, communication and many other activities are much more short-term oriented in SMEs than in big companies because of the small number of employees. But the exchange of content, organizational and infrastructural aspects depend on several criteria such as number of employees, complexity of organizational structure, availability of competences, enterprise culture and much more.

A further important barrier to VCoPs refers to selectivity in the choice of ICT to support the CoPs. VCoPs need to use Internet standard technologies such as bulletin boards and Web ones. Members of VCOPs have often difficulties with the ICT access and ICT skills referring for example to the use of on-line forums and eLearning training. In order to assure an optimal interaction between users and the ICT platforms supporting KM in VCoPs with SME participation, methodologies and processes should be used for the interfaces taking into consideration not only the functionality of the CoP but also the ICT competences and learning abilities of the learning staff who are members. Interfaces should have a basic real level of usability.

We applied the CoPs ideas in some of the activities of the EU project SIMPEL to test the suitability of a CoP structure based on Web 2.0 methods as an intensive knowledge and learning environment (Beer *et al.*, 2008). In the CoP we developed strategies to enable SMEs to take advantage of E-Learning in their training. We involved SMEs and online learning experts in communities of practice (Hamburg *et al.*, 2008) to share learning and knowledge

and to develop continuous vocational education strategies based on Web 2.0.

In a European CoP an "innovative and optimal vocational training model" for SMEs based on E-Learning was developed. This uses best practice for capturing and sharing knowledge and for using E-Learning collected by the CoP members. Guidelines for using the training model have been written. This CoP attracted sectors engaged in support, training, design / development use, in consulting and in policy formulation concerning E-Learning in SMEs in the European Union. In order to train SMEs to make more use of Web 2.0 for sharing and acquiring knowledge and for improving the interactions with their customers it is intended to increase the activities of this CoP with tutorials including Web usability guidelines for SMEs.

The ongoing German CoP will focus particularly on analysis and testing online learning, oriented to the design and use of new working environments in SMEs by acting in CoPs (Garrick, 1998; Hall, 2000). The topic was chosen because analysis shows that individual SME staff shows more interest in the achieving of competences based on intensive knowledge (Hamburg, 2007; Hamburg and Engert, 2007) for things they do or will do, rather than for certification. The framework of the CoP is useful for informal learning and knowledge sharing; the social participation of members is the key for informal learning being embedded into practices and workplace relationships. For example, keeping abreast of administrative and technical changes necessary to solve daily tasks efficiently, and strategies to help solve problems and communicate with colleagues and co-workers. This CoP has permanent members who make regular contributions but also occasional members who use the information and knowledge needed for their work and business and sometimes contribute. For the future it is intended to encourage more SME to participate and to use the knowledge and resources developed within the CoPs.

In looking for suitable software to support communities of practice and to facilitate the processes of knowledge sharing and learning, the SIMPEL consortium decided on Moodle (Dougiamas, 2004). The choice of Moodle was first based on an analysis of some open source virtual learning environments (VLEs) referring sustainability and viability (that influence the costs for adoption and further developments of the system) and of the pedagogical rationale of the environment (how the VLE fits the pedagogical aims of the organizations which use it). Some of the key points for evaluating sustainability and viability refer to implementation and maintenance and further criteria such as community activity, usability level, hard and software requirements, system reliability, support, modular system architecture and compatibility with existing systems within SMEs. Moodle is used also because some project partners and SME staff have experience with it.

SIMPEL built four course rooms in the Moodle environment for the European CoP. In addition to the CoP course room Moodle was used for project management purposes, particularly the organisation of conferences.

4.2 Cluster as localised Learning Environment

In contrast to CoPs, for which location is no decisive factor, learning processes within clusters are localised and geographically bound. The cluster approach emerged from a new direction in both regional science and regional policy, which draws on concepts such as innovative milieus, regional networks or regional innovation systems. Following the seminal work of Michael E. Porter, the term cluster is understood as the vertical (producers and suppliers) and horizontal (particularly research and development qualification, technology infrastructure, support agencies) concentration of interdependent firms within a single or similar economic sector in a restricted geographical area (Rosenfeld, 2002). Despite the fact that there is no widely accepted single definition of the term "Cluster", in general a central assumption is made that a cluster is more than the sum of its parts. And, almost all definitions share the idea of proximity, networking and specialisation. The relationships between the firms of a cluster are characterised both by cooperation and (innovation-related) competition as well as mutual dependence (interdependence). Based on the idea that proximity matters, membership in a cluster is believed to enhance the productivity and innovative performance of firms. It is argued that clusters facilitate knowledge spillovers and interactive learning processes (Zaheer and Bell, 2005; Tallman *et al.*, 2004).

The concept of localised learning refers to local conditions and proximity between actors as enabler for the formation of distinctive cognitive repertoires and determinant for the generation and selection of skills within a field of knowledge. The concept bases on two interrelated arguments: (1) localised capabilities as social and institutional underpinning of learning and (2) interactive learning as localised process (Malmberg and Maskell 2005). In the following we will focus on the latter in the context of clusters. Localised learning processes and the benefits of spatial proximity are closely related. Within clusters, localised learning refers to the enhanced knowledge creation resulting from co-located firms undertaking similar and related activities. To retain and improve the cluster's knowledge stocks, firms within clusters have to learn – both as a single firm and as a group of firms (Steiner and Hartmann, 2006). In contrast to online learning or dispersed CoPs, learning processes within clusters accrue from regular and direct face-to-face contacts, none more so than tacit knowledge, as well as cultural, social and cognitive proximity, which make it easier to understand subtle and complex knowledge. Different patterns of learning can be found such as *learning through interaction* and *learning through monitoring*, both in the horizontal (firms that produce similar goods and services) and vertical (firms and organisations of the cluster that are complementary and interlinked through a network of suppliers, services and customer relations) dimension of clusters. Furthermore, learning may simply result from neighbourhood effects (Malmberg and Maskell, 2005, Bathelt and Glückler, 2003).

Interactions between the cluster members ease the flow of knowledge across firms' boundaries and thus, fertilise learning processes. Vertically related firms possess knowledge, skills, or experience useful for undertaking dissimilar but complementary activities. For example, close interactions with customers can help firms to better understand future market demands. Forasmuch, learning is related to knowledge upgrading. Likewise, this applies to supplier interactions. Linkages with academia, whether in form of spillovers or formal collaboration, also contribute to knowledge creation and learning processes in firms. In all cases, learning can be of informal nature (e.g., informal meetings, social networks, cluster events) or participatory character (e.g., interfirm R&D teams, joint projects). With regard to the horizontal dimension, firms in a cluster find themselves in a situation where rivals and competitors continuously monitor them and vice versa. Changes in products and services can be observed and compared, and thus learned from. That is, spatial proximity in a cluster helps firms to identify and imitate superior products and services while combining them with their own ideas and knowledge. Next to the described proximity effects, localised learning processes are inherited in the everyday life of people living and working in a location. Processes of information exchange or knowledge spillovers can be observed that are not directly related to firms' business activities, but occur as unintended side effects of such. This is what Stoper and Venables (2004) call 'local buzz'. The local buzz consists, amongst others, of specific information and its continuous update, intended and unanticipated learning processes in formal and informal meetings as well as of a mutual understanding of new knowledge. Taken together this eases interaction and makes learning less costly.

Although, clusters bear a high potential for learning be it through interaction, monitoring or day-to-day activities, benefitting from these is by no means self-evident. The extent to which SMEs benefit from localised learning processes strongly depends on their involvement in the cluster and their absorptive capacity. Involvement refers to the SMEs interaction intensity. It is assumed the more intense knowledge-based interactions within the cluster, the higher the impact of localised learning. Nevertheless, cluster internal interactions should always be complemented by well-developed external network linkages, in order to reduce the risk of lock-ins resulting from 'cluster-blindness' or mimetic isomorphism, and to rejuvenate their knowledge base over time (Boschma and Ter Wal, 2007; Giuliani, 2008; Rocha and Sternberg, 2005).. Another key aspect for exploiting the potential of cluster-related learning processes is SMEs absorptive capacity. That is, SMEs need to have the capability to acquire, understand and exploit external knowledge Abreu *et al*., 2006). Firms with a higher level of absorptive capacity, ceteris paribus, are expected to derive higher learning benefits from the cluster, as they are in a position to effectively integrate the knowledge available in the cluster into their knowledge base and put their enhanced knowledge to more effective usage.

5. CONCLUSIONS

In this paper, we advocate the utilisation of online or E-Learning and of standard and web 2.0 services and applications, processes and products by SME staff for training, knowledge management and innovation. Despite setbacks in the past, mostly caused by exaggerated expectations and inappropriate approaches and products, on-lie learning is still one of the keys for the solution of the human resources and training problems of European SMEs. To work towards sustainable learning strategies, however, on-line learning has to be embedded in intelligent and adequate "mixtures" of different learning methods and technologies. Also, it is typical for SMEs to look for efficient "blends", or even seamless connections between information/communication, learning and knowledge-management. This is also due to specific demands on learning in SMEs – just in time, on the job, closely related to requirements of the job.

An "ideal" workplace model for SME staff is not known and will probably never be found. But is is certain that future-oriented working environments have to be shaped and organized so that they are conducive to innovation, sustainability and creativity. They should promote social equality and relationships between employees based on cooperation and trust as well as recognition of the value of diversity. On-line learning is one of the conditions to design and use of future working environments.

We are convinced that a European-wide CoP focussed on the design and exchange of experience with new working environments will make a positive contribution to rooting and spreading strategic approaches to learn "for tomorrow" in SMEs.

Social networks such as VCoPs are useful for keeping experts and clients in touch and for informal learning. However, suitable platforms are needed for more formal activity work and business-oriented content; technology can never be a total substitute for face-to-face activity for SMEs.

Wikis form an important Web presence for many companies but have to be regularly checked and updated in order to be a useful and informational help to staff, customers and the press. Podcasts, Facebook Widgests, Wikipedia entry, RSS etc can all be useful depending on the core business and needs of the company.

Learning cooperatively for working by using online learning and the improvement of "readiness" of SMEs in this context are ongoing research topics of the authors. They will cooperate within the new Leonardo Project LLL Readiness in SMEs aiming at this topic.

The authors constitute a study group aimed at these themes and are active members of the German CoP which expands its activities.

The models of CoP and Cluster also look promising under the aspect of marketing. On the one hand, marketing, especially for SMEs, needs to exploit the Internet to reach customers and this does not apply only to SMEs in the role of global players. Also regional and even local

markets are more and more organized on the Internet (starting with customers searching for products and services).On the one hand, marketing on the Intetrnet offers tremendous opportunities to SMEs, often levelling the playing field between them and big enterprise, on the other, it requires specific skills, from designing and running a website and a webshop based system of delivery to SEO optimization or using marketing portals effectively, including the big ones like ebay and social networks, from Facebook down to specific branch networks. CoPs and Clusters can help to share skills and experiences or even resources in this crucial field. Still another aspect here is this: a successful CoP oe a Cluster can itself be a marketing asset for the companies involved because working in CoPs/Clusters projects a modern image of IT based new cooperation geared to innovation and openness.

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