Joint International Workshop on Professional Learning, Competence Development and Knowledge Management - LOKMOL and L3NCD

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1 Introduction

In many organizations most working processes are very knowledge intensive and involve many people working at different locations and on different tasks. The context in which people are working is changing constantly through changing work processes, different tasks or problems to be solved, and evolving technologies which are used at work. These facts require life-long competence development. Competency development takes mostly place during informal learning at the workplace. The learning process is characterized by self-organized activities such as selecting the environment for learning (e.g., Internet), defining learning goals (e.g., related to a work problem), finding and selecting content for learning (e.g., websites or colleagues), and following a preferred learning path.

Beside a continuous formal competence development, sharing knowledge among members of the organizations and making ones knowledge explicit for others is crucial. Working and learning takes place in a network of people, tools, environments, and knowledge. These networks facilitate interaction and communication The use of available e-Learning and Knowledge Management applications in a network setting can help to address the challenge of continuous competence development.

However, questions arise how these methodologies and technologies of the different domains fit together in order to ensure that the learned can be transferred to

the workplace and to improve the performance of each individual? How can we foster interaction and provide a personalized learning experience according to the current situation and context (e.g., flexible guidance for self-directed learning, adaptive content selection and structuring)? How can we better use existing networks for competence development and how can we ensure that learning goals are based on real-world needs? How can we engage learners and actively involve them in the learning process through interaction?

The high potential for synergies between Knowledge Management (KM) and e-Learning seems obvious given the many interrelations and dependencies of these two fields. However, the relationship is not yet fully understood and harnessed. KM addresses learning mostly as part of knowledge sharing processes and focuses on specific forms of informal learning (e.g., learning in a community of practice) or on providing access to learning resources or experts. Current KM technologies focus on knowledge acquisition, storage, retrieval, and maintenance. However, regarding the deployment process, learning is considered to be a fundamental part of KM because employees must internalize (learn) shared knowledge before they can use it to perform specific tasks. On the other hand, e-Learning systems might also benefit from KM technologies. Especially the ones focusing on the support of technical and organizational components can play an important role concerning the development of professional e-Learning systems.

During the last years, so-called Web2.0 technologies, such as Wikis and Blogs, received more and more attention and they are currently used in many different domains. So far, these technologies seem to have a positive impact in terms of community building, knowledge sharing, and content creation - even if their success has not been empirically proven. First questions arise, to what degree these systems (e.g., Weblogs, Wikis, XML/RSS based content syndication and aggregation) support certain learning processes.

This workshop is made out of two different calls for papers. On the one hand, LOKMOL (Learner-Oriented Knowledge Management & KM-Oriented E-Learning), based on the insight that KM technologies need to take into account findings from social sciences such as pedagogy or psychology, to be effective in terms of learning and that learning can profit from KM technologies. In fact, there is a gap between well organized, but monolithic and inert e-Learning material such as courseware on the one hand and dynamic and flexible knowledge bases that are often not able to activate learning processes on the other hand. An integration of KM and e-Learning, especially by using Web2.0 technologies, could dramatically change today's understanding of further education towards lifelong learning fed by dynamically changing public and organizational knowledge repositories. Web2.0 technologies already incorporate the network paradigm of continuous documentation, sharing, and construction of new knowledge.

On the other hand, L3NCD (Life Long Learning Networks for Competence Development), based on the experience of the European projects TENCompentence (www.tencompetence.org) and ProLearn (www.prolearn-project.org). Researchers in the workshop are able to identify and analyse current research and technologies in certain fields in order to support individuals, teams and organisations to (further) develop their competences, using all the distributed knowledge resources, learning activities, units of learning and learning routes/programmes that are available online.

Recent developments clearly indicate a change in the way we acquire and improve our level of expertise in some field or another. Life Long Learning Networks and Competence Development are two relevant topics focusing on continuous education to support new ways to our professional development. Getting some personal competences that provide a good framework beyond the established curriculum is a crucial issue to get and consolidate any professional position. On the other hand, learning networks are an excellent way to acquire and to share knowledge in an informal communication process. The combination of both topics enables the development of tools and methodologies to improve personal competences while, possibly at the same time, contribute to the development of other learners.

The requirements of the models and technologies to support such integrated facilities differ considerably from those traditionally required from technologies that support lifelong learning, or to enable company knowledge dissemination and knowledge management needs. The lifelong competence development of each individual and the multi-institutional and episodic nature of this learning are not reflected in today's mainstream learning and knowledge technologies and their associated architectures.

As a result of these two calls for papers, LOKMOL and L3NCD bring together a common workshop providing a pool of interesting and highly related topics: Professional Learning, Competence Development and Knowledge Management.

2 Workshop Topics

Adaptivity and Personalization

Providing information tailored to an individual's needs and preferences is a key factor for the success of professional learning. Thus, systems must take into account the current situation and context to be able to deliver an appropriate learning experience. Learner-oriented knowledge structuring and the ability to deliver "just enough" information "just in time" are key technologies to enable such an experience.

Rostanin & Schirru [7] present a method for learning goal elicitation by using information derived from an enterprise workflow management system. Adaptive presentation generation is enabled by using the learning goals to select appropriate content and a learning strategy. Ley et al. [5] use the competence performance approach to support informal learning interventions. In this approach, competencies are used to structure single learning resources according to the underlying knowledge need. Braun & Schmidt [2] give an overview about the potential of "social awareness", claiming that technological support must become more aware of the social context of the individual in order to be able to provide adequate support.

Collaborative Work and Collaborative Learning

As working and learning often takes place in a network of people and (KM) tools, an appropriate support by these tools can also stimulate learning processes. Moreover, collaboration is facilitated by a lot of social web applications that become more and more popular.

Allert et al. [1] focus on scenarios of ontology-based collaborative learning, while Braun & Schmidt [2] investigate the influence of the social context of a user, e.g., when using an "expert finder" component. Kohlhase [3] addresses the topic of users as consumers and producers using the notion of content collaboration as example for the "Prisoner's Dilemma".

Users as content consumers and producers

Nowadays, users are often no longer acting just as consumers of content. User generated content has become more and more important in the recent years, fostered especially by the use of Web2.0 technologies like Wikis and Blogs. These developments do not only support sharing knowledge, but also an active involvement in the learning process. However, there's still a lack of deeper analysis concerning the success of these methods in different scenarios.

Kohlhase [3] analyzes social tagging as a technique being used very successful in various applications within the Web2.0 context to investigate how users can be stimulated to contribute.

Lifelong Learning Networks and virtual learning communities

Koulouris & Sotiriou [4] research on the use of Long Life Learning Networks in rural environments and show how powerful are and how many benefits the users can take out of it. In doing so, it is needed to establish members' commitment to the domain, and facilitate community development by assisting them to engage in joint activities and discussions, help each other, share information and learn from each other in a collaborative way, while pursuing their interest in their domain. This will indeed be a community of practice rather than a mere community of interest.

On the other side, Varlamis & Apostolakis [8] address that the gains from the use of a virtual learning community [9] are many for universities and students, as the students have the ability to exchange empirical knowledge while carrying out learning activities and the tutors can increase the consultation time through forums. On the other hand, when communities are in contact with companies, they receive information on new products and reading material, thus promoting professional excellence of educators.

Personal Learning Environments

Wilson et al. [10] state that VLE is clearly the dominant design in educational technology today, and is nearly ubiquitous in higher education institutions. There is a

desire to bridge the worlds of formal and informal learning and to realize the goals of lifelong learning by the increasingly prevalent forms of social software and the new paradigms of the web as technology platform. The VLE is by no means dead, and those with investments in this technology will attempt to co-opt new developments into the design in order to prolong its usefulness.

3 Concluding Remarks

In this chapter we reviewed the contributions to the Joint International Workshop on Professional Learning, Competence Development and Knowledge Management. Similar to what we found in the previous LOKMOL workshop [6], these three topic areas can be brought together and even integrated in a variety of different ways. Life-Long Learning is an important task and challenge of the future, both for organizations as well as for the community as a whole. KM and e-learning technologies offer opportunities to master this challenge by contributing and facilitating to continuous competence development in trainings and at the workplace.

In particular, the workshop identified three emerging trends that look promising and that present a number of research questions:

- *User Orientation:* KM technologies provide huge potential for delivering content and information that is tailored to the individual needs of the user or learner. Rather than a one-size-fits-all approach, as frequently adopted in early e-Learning products, the learner should be put into the center of the learning process. User adaptivity and personalization in accordance with individual preferences, learning goals, needs or learning styles might improve the learners' motivation and the learning effect. Individually tailored knowledge chunks delivered in a timely manner offer learning opportunities that would not be available otherwise.

- *Collaboration:* Collaboration in a variety of formats became popular with the adoption of the social web, the so-called Web2.0. For instance, learners collaborate or cooperate in communities of practice as well as for informal or self-directed learning. Social web technologies aim to exploit the power of the social knowledge, by facilitating common efforts (e.g., wikis, blogs) or by providing information about the behavior of peers (e.g., social tagging). A number of examples demonstrate how this can be harnessed for learning. In the context of Life-Long Learning , learners must be enabled to build and maintain communities that are stable enough to provide over-lasting, trust-worthy social contacts, but that are flexible enough to cater for the ever changing learning needs.

- *Activity centered:* Both e-Learning and KM used to be very much focused on content delivery as opposed to learning activities. The recent trend towards richer, interactive content has also been recognized in this workshop. Explicit modeling of and adaptation of technologies to the learners' activities will make learning at the workplace more natural and effective.

The workshop also stressed again the fact that effective and efficient competence development can be achieved only in an interdisciplinary effort. Pedagogy, sociology, psychology, business administration and computer science can make valuable contributions to this field, but need to learn from each other. We are confident that the workshop represents a step towards this goal by outlining synergies and opportunities for research and practice.

Acknowledgements

LOKMOL

L3NCD

- Mike Spector, Florida State University, USA
- Colin Tattersall, Open University of the Netherlands
- Klaus Tochtermann, Know-Center Graz, Austria
- David Wiley, Utah State University, USA

References

1. Allert, H., Markkanen, H., Richter, C.: Rethinking the Use of Ontologies in Learning. This volume. (2006)
2. Braun, S., Schmidt, A.: Socially Aware Informal Learning Support: Potentials and Challenges of the Social Dimension. This volume. (2006)
3. Kohlhase, A.: The User as Prisoner: How the Dilemma Might Dissolve. This volume. (2006)
4. Koulouris, P., Sotiriou, S.: Building Lifelong Learning Networks of Teachers for the Development of Competence in Teaching in Small Rural Schools. This volume. (2006)
5. Ley, T., Kump, B., Lindstaedt, S. N., Albert, D., Maiden, N. A. M., Jones, S.V.: Competence and Performance in Requirements Engineering: Bringing Learning to the Workplace. This volume. (2006)
6. Ras, E., Memmel, M., Weibelzahl, S.: Integration of E-Learning and Knowledge Management - Barriers, Solutions and Future Issues. In Professional Knowledge Management (Berlin, 2005), K.-D. Althoff, A. Dengel, R. Bergmann, M. Nick, and T. Roth-Berghofer, Eds., Lecture Notes in Artificial Intelligence LNAI, Vol. 3782, Springer Verlag. (2005)
7. Rostanin, O., Schirru, R.: Identification of User's Learning Goals in Workflows. This volume. (2006)
8. Varlamis, I., Apostolakis, I.: A framework for building virtual communities for education. This volume. (2006)
9. Wenger, E.: Communities of practice: learning, meaning, and identity. Cambridge: Cambridge University Press. (1998)
10. Wilson, S., Liber, O., Johnson, M., Beauvoir, P., Sharples, P., Milligan, C.: Personal Learning Environments: Challenging the dominant design of educational systems. This volume. (2006)