

Communities of Practice and Web 2.0 to support learning in SMEs

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Abstract — Web 2.0 combined with E-Learning can support a fast transfer of knowledge by meeting European small and medium sized-companies (SME) needs of flexibility, a learning process oriented to their business and easier integrable into their workflow with a suitable personalized content at a lower cost to the organization. In this paper after the presentation of the use of E-Learning in European SMEs examples of building learning strategies including E-Learning 2.0 within Communities of Practice are given.

Keywords —SME, Strategies, E-Learning, Web 2.0, Communities of Practice.

I. INTRODUCTION

Small and medium sized enterprises (SMEs) are economically important, since they represent 99% of all enterprises in the EU, provide around 65 million jobs and contribute to entrepreneurship and innovation. Many of them have economical difficulties that can be minimize through improving the competences and qualification of their staff. But they have no knowledge and resources to develop and implement sustainable training strategies based on new media and knowledge processes for their own organization and need powerful ways to innovate. Particularly the combination of E-learning [1] with Web 2.0 (E-learning 2.0) for achieving nowadays expectations of corporate learning to deliver enterprise services through the Web and for improving collaboration, communication and effectiveness of work could be very useful for SMEs. “The challenge will not be in how to learn, but in how to use learning to create something more, to communicate.”[2].

A Community of Practice (CoP) could provide a useful perspective on knowing and learning such methods for SMEs which have not always the resources and knowledge to do it alone. A CoP binds together a group of people who share a concern, a set of problems, an expertise or a passion for a topic. “Communities of practice are formed by people who engage in a process of collective learning in a shared domain of human endeavour.” [3].

They trace their roots to constructivism [4] involving open-ended questions, learning in social and physical contexts of real-world problems, using collaboration and cognitive tools. Formal and informal roles to keep CoP alive are shown in Table 1.

Information and communication technologies (ICT) like the Internet support virtual communities of practice (VCoPs). These can be improved by the facilities of Web 2.0 and the principle of connectivism [5] – see Table 2.

After a presentation of the training situation in European SMEs, their needs and the use of E-learning and Web 2.0 in the part 2 of this paper, some characteristics of CoPs are given in part 3. Ongoing developments within the European project SIMPEL to involve SMEs and E-Learning experts in sharing knowledge and in collaboration within a CoP supported by a Moodle-based platform and to develop participative training strategies based on E-Learning 2.0 is presented in part 4. This form of learning is relatively new and requires more time to begin it and to take shape in most SMEs.

II. EUROPEAN SMEs – THE USE OF E-LEARNING 2.0 FOR TRAINING THEIR STAFF

Global changes and complex processes like the EU enlargement require SMEs to find innovative ways to improve their performances. But many European SMEs have:

- difficulties with management missing elements of knowledge management,
- low transfer of knowledge to improve the effectiveness of their work tasks,
- not enough knowledge of policies of communication and cooperation in research and production.

Also the use of new information and communication technologies (ICT) for sharing and creating knowledge and for development (updating) of innovative skills is unsatisfactory.

All these aspects require an improving of corporate learning to assure a fast transfer of knowledge, to allow SMEs to meet their needs of flexibility, to be oriented to their business and be easier integrated into their workflow with a suitable personalized content at a lower cost to the organization.

E-learning through its flexibility and facility of access is seen as an enabler of lifelong learning having the potential to transform how and when employees learn to satisfy their work and life needs, as a catalyst of change and integration. It is to be seen as a chance for SMEs to improve their business and to integrate into the European market, too.

Some advantages of E-learning for SMEs (Fig.1) were identified in analyses carried out in European projects like ARIEL (www.ariel-eu.net, [6], [7]) and also by surveys for CEDEFOP i.e. in Austria and in Italy [8].

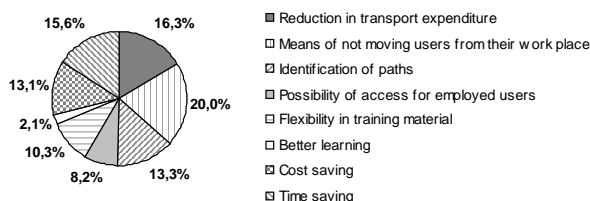


Fig.1. The main advantages that organisations have from E-learning [8]

E-learning 2.0 [2] which has a clear focus on the community gives a natural support for personal and group informal learning in SMEs by simplifying tasks like research, working and learning in groups. For example writing in public blogs forces to think about the corresponding issues. By putting this out to a community, input from peers and help from a network of individuals to learn and solve problems in the future will be received.

E-learning 2.0 makes an impact also in formal learning settings and these are particularly useful for collaborative formal learning. E-learning 2.0 is based on tools that combine creation of content easily with Web delivery and collaboration.

Karrer's concept of E-learning 2.0 (<http://www.learn-ingcircuits.org/2007/0707karrer.html>) is based on delivery of content in small pieces over time as part of a large process which correspond to the need of SME staff for a faster learning in the context of their work.

Many European SMEs use digital media including CD-ROMs, the Internet and Intranets for accessing technical manuals or for Web searches but not much for formal learning.

How SME's use the Internet is shown in Figure 2.

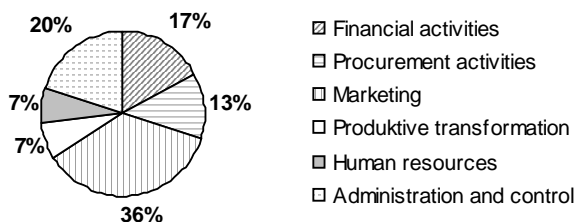


Fig. 2. Percentage distribution of the use of the Internet among the activities of a company [9]

It can be observed that the Internet is used in SMEs predominantly for advertising of their products (particularly through web sites) and only 7 % for human resources.

Some of the significant key factors negatively impacting E-learning and knowledge development in SMEs identified in various projects and studies are [6], [7]:

- Lack of appropriate software and contents,
- The attitude of managers – they often have not enough knowledge or are not convinced of the ef-

fectiveness of E-learning. Their attitude is a part of the learning culture of the company,

- Lack of time and lack of access to sufficient bandwidth to ensure high quality training,
- Lack of knowledge of agreements and associations that could be useful both as regards resisting the power of intermediaries and large competitors as well as adopting policies of communication.

Many SMEs act alone in solving their problems but do not find efficient solutions.

In the following we present communities of practice as a suitable environment for SMEs to share knowledge with different professionals and “to learn as you go”, that means interest in practical examples and best practices.

III. VIRTUAL COMMUNITIES OF PRACTICE

Communities of practice (CoPs) can become a powerful way for SMEs to innovate and develop new capabilities. Not every community is a community of practice.

Using ICT such as Internet to support the ongoing interactions, communities of practice become increasingly virtual (VCoP) which frees their member of time and space and are convenient also for people with special needs. So the Internet not only makes readily available a vast amount of information and resources but brings people together in a shared environment to exchange ideas, learn and engage in collaborative decision making.

Within VCoP, Fontaine identified 11 formal and informal roles needed to keep communities alive (Table 1) and gave an insight of the corresponding responsibilities. But in each community it should be investigate how decisions regarding those roles should be carried out to maximize the benefits of it how these roles are being managed during the VCoP's life.

VCoPs have advantages like the following:

- Are places where people and information can be accessed anytime,
- Through different expertise and knowledge of the participants, their innovative ideas can contribute to more effective problem solving and decision making,
- Are cost effective,
- People feel less inhibited in their interactions and this is particularly important for people who learn.

As disadvantages of VCoP we mention:

- A continue motivation of the members has to be created,
- The missing of “face to face” communication can contribute to a growing social isolation,
- Needed hardware and software and/or difficulties with the use of the VCoP supported technology can hinder interested people to participate in.

The current Web-based technology (Web 2.0) which is not only a technical revolution but first of all a social one, has a vast potential to create prospering environments for emerging communities of practice. Social software lends itself very well for support of activities

within a community and for staff of SMEs to collaborate. These technologies are based on the idea of connectivism developed by Siemens (2005) where learning takes place in distributed networks of people. Content and services are adaptable and responsive for example to specific needs and goals of SMEs. This complements the constructivism approach. This approach complete the other ones (Table 2).

Table 1: Typology of community roles – [10]

	<i>Role</i>	<i>Description</i>
Knowledge Domain Roles	Subject Matter Experts	Keepers of the community's knowledge domain or practice who serve as centers of specialized tacit knowledge for the community and its members
	Core Team Members	Looked upon for guidance and leadership before or after a leader emerges or is selected; guidance includes developing the community's mission and purpose.
	Community Members	Take active ownership in the community by participating in its events and activities and driving the level of commitment and growth of the community.
Leadership Roles	Community Leaders	Provide the overall guidance and management needed to build and maintain the community, its relevance and strategic importance in the organization and level of visibility.
	Sponsors	Nurture and provide top-level recognition for the community while ensuring its exposure, support, and strategic importance in the organization.
	Facilitators	Network and connect community members by encouraging participation, facilitating and seeding discussions and keeping events and community activities engaging and vibrant.
Knowledge Intermediary Roles	Content Coordinators	Serve as the ultimate source of explicit knowledge by searching, retrieving, transferring and responding to direct requests for the community's knowledge and content.
	Journalists	Responsible for identifying, capturing and editing relevant knowledge, best practices, new approaches and lessons learned into documents, presentations and report.
	Mentors	Act as community elders, who take a personal stake in helping new members navigate the community, its norms and policies and their place in the organization.
Community Support Roles	Admin./ Events Coordinators	Coordinate, organize and plan community events or activities.
	Technologists	Oversee and maintain the community's collaborative technology and help members navigate its terrain.

Table 2: Learning Theories

<i>Theory</i>	<i>Learning model</i>	<i>Learning resides</i>
Behaviourism	"Black box"	Behaviour demonstration
Cognitivism	Computer-model	In the mind of the individual – processed
Constructivism	Creation or construction of meaning (Building)	In the mind of the individual – constructed
Connectivism	Networks and ecologies, connections	Distributed, in network

Source: http://www.elearnspace.org/presentations/connectivism_utrecht.ppt

In the following we present our current European project SIMPEL, where communities of practice and business-oriented models of E-learning are under development.

IV. EXAMPLE

SIMPEL is a current European project financed under the European eLearning initiative. In seminars with managers of SMEs in all project partner countries (Germany, The Netherlands, Hungary, Ireland, Italy) a VCoP for development of sustainable training strategies and models by using E-learning was initiated [11], [12].

The objective of this community is also to promote models of good practice and to attract staff who are engaged in support, training, design/development, use, consulting and policy formulation concerning E-learning in SMEs in the European Union, starting with the countries, where SIMPEL partners are active (<http://www.simpel-net.eu>).

In looking for a suitable platform to foster the building of our community of practice and to facilitate the processes of scenario- and model-building, the SIMPEL consortium decided on Moodle [13], [14]. Moodle encourages collaborative work also by providing a differentiated group mode and the ability to network course leaders/trainers. In addition, the platform is extremely flexible and easy to use for beginners. At the same time, it is "scaleable" to accommodate complex learning and teaching scenarios. The choice of Moodle was based first on an analysis of some open source 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. Secondly we decided to use Moodle because some of the partners already had good experience and competence with this environment.

The market is paying its tribute to these advantages: Moodle is presently the fastest growing open Source LMS worldwide and it even has found entry in the world of SME's [14], [15].

Examples include:

Moodle in the Makeup Industry:

<http://learningenvironment.alteredperceptions.org.uk/>;

Moodle courses for the cleaning business:

<http://www.hma-university.com/>;

Moodle in the training hotel owners/managers:

<http://pce-savignac.com/moodle/index.php>;

IT and marketing courses:

<http://formazione.netcomsrl.com/moodle/>

The community will provide professional support for SMEs in using E-learning.



Fig. 3. Using Moodle for SIMPEL

Another method we experienced within the project ARIEL is the scenario building , [16], [17] Within SIMPEL we use scenarios in workshops with SMEs managers, staff and consultants to adopt Web 2.0 and E-learning tools as part of their daily work. Web 2.0 can be effectively used for management (planning and formulating strategies by using actual information, examples from competitors through professional bloggs with RSS Feeds, etc.), marketing (i.e. by using social networks like XING new clients can be found), production (i.e. to describe new products/services and to discuss their content by using Wiki or bloggs) and purchases.

There will be continuous efforts to forge close associations with other vocational education communities and to disseminate the results of SIMPEL to other European countries which are not project partner.

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