# SOCIALLY INCLUSIVE eLEARNING MODELS IN COMPANIES

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**Abstract**: This paper presents different aspects in developing socially inclusive eLearning models to help people with disabilities improving their work life and facilitating their integration in small and medium sized companies (SMEs) or in other organizations. Two international cooperation that have the main aim of developing and implementing eLearning models for people with disabilities who work for different SMEs and also for groups of SMEs, within virtual communities of practice having similar profiles, are given as an example.

**Keywords**: eLearning, eInclusion, eLearning models, virtual communities.

## 1. Introduction

It is known that digital divide is a multidimensional phenomenon including some mental drawbacks which can be fought through suitable models of education and vocational training.

The critical role of digital technologies and new learning methods based on them in shifting vocational training from "just-in-case" to "just-in-time" to fulfil training requirements is undisputed. In addition, today's learners, especially younger ones, expect to use computers which support such learning methods like eLearning, that means *"… the use of new multimedia technologies and the Internet to improve the quality of learning by facilitating access to resources and services as well as remote exchanges and collaboration."* (EU eLearning Action Plan – 2001). The EU Lisbon, Stockholm and Barcelona Councils called for sustained action to integrate Information and Communication Technologies (ICT) in education and training systems "for all".

To use eLearning for eInclusion means not only to tell people that information technologies are important but to show them in a practical way how to use the Internet to expand their competences and capacities to empower themselves and achieve a better work style and life.

Some of the barriers for eInclusion of people with disabilities in productive work like lack of trust or lack of motivation belong to the user side but there exist also other ones like the lack of models of training and methodologies which pay attention to the social and cultural contexts, lack of adapted content for people with special needs and of adaptive technologies. For example, the content of web sites with presentation of products that use very small font sizes in graphic presentations are rarely adapted to people with visual deficiencies or elderly ones.

eLearning in working life (corporate training sector) has its main advantage in supporting the elimination of the border between learning and working. Some examples are "Just-in-time Knowledge Management" which requires the learning system to be accessible at any time and oriented on the

knowledge and the solutions to the problems instead of being oriented on the system; "Rapid Knowledge Transfer", referring to quick distribution of information about new products and strategies that have a short life span, to a large number of employees; "Human Capital Management" focused on strategic training of employees depending on their career path but coordinated by "skill gap analysis" and "skill management" and "Virtual Corporate Universities" particularly in large enterprises.

The topic of this paper is to show the main aspects in developing socially inclusive eLearning models and virtual communities of practice. Some examples of best practices, developed in the framework of the Socrates Program are also presented.

## 2. Main Aspects in Setting Up a Socially Inclusive Elearning Model for SMEs

First point is that digital technologies are never neutral and if they are not used appropriately, they can expand the social division instead of diminishing it. It is known that common groups excluded from the information society like people with disabilities or older ones usually experience some forms of social exclusion. Using the eLearning systems should be meant to develop social skills and so, to create a sense of self -efficacy for people with disabilities and to motivate them to become active in ecological settings. Margalit and her group (Margalit, 1991, Margalit & Weisel, 1990, Margalit, Weisel & Shulman, 1987 cited by Zheng et al. 2003) documented the efficacy of computer-assisted social skills learning with students with learning disabilities, mild retardation and behavioral disorders. Also, to help them, the Internet and new technologies should be used to develop partnerships, to enhance employment opportunities, to facilitate life-long learning by identifying and participating in distance learning courses.

Another point is to adopt web accessibility guidelines in providing barrier-free web sites, to train employees to use teleservices and to create communities of practice with participation of disabled employees based on their competences.

One of the most important trials in generating web accessibility guidelines, which have the potential to become an accepted standard, is the creation of the Web Content Accessibility Guidelines (WCAG) by the Web Accessibility Initiative (WAI) of the World Wide Web Consortium (W3C). These guidelines (version 2.0 is drafted, last draft is from 17th of May 2007) should provide the requirements for making web content more accessible to people with disabilities including blindness and low vision, deafness and hearing loss, learning disabilities and others. However, the authors of the guidelines name the limitations of the guidelines "even content that completely conforms to WCAG may not be fully accessible to every person with a disability"(W3C 2007). Furthermore, the guidelines do not address to many groups of people with mental disabilities.

It is not enough to supply employees with IT courses and access to the latest technology but to provide qualified teachers, adequate software and hardware and appropriate content to meet the social and work needs of different target groups. Particularly young people should understand that technology is an essential part of their lives by increasing their interest in technical careers and schools.

Also, much more attention should be given to psychological aspects of eLearning. We should keep in mind the fact that eLearning is more then a learning system but a psychological phenomenon. If we want to improve people's learning with information technologies, we should study the psychological mechanisms involved in eLearning. Two influential cognitive theories used in eLearning systems development are the dual coding theory and the cognitive load theory.

Allan Paivio advanced first the dual coding theory in 1991. The theory posits that both visual and verbal information are processed differently and along distinct channels with the human mind creating separate representations for information processed in each channel. Also, each channel has a limitation, which is why, using a multimedia system; we use multiple channels that do not compete for the same resources. The result is a more efficient learning process.

In terms of e-learning system design, this implies that a dual modal interface may prove more effective for enhancing the learning ability as it allows the brain to search along two paths during recall allowing for the maximization of the learner's response time.

The other theory, the cognitive load theory, was developed by Sweller J., and it is concerned with techniques for reducing working memory load in order to facilitate the changes in long term memory associated with the learning process. Cognitive load theory has many implications in the design of learning materials that must, if they are to be effective, keep cognitive load of learners at a minimum during the learning process.

Also, according to Atkinson and Shiffrin (1968), information is registered by the senses and then placed into a short-term storage area and if it's not repeated, decay after about 15 seconds. The design of e-learning devices must take into account this phenomenon and repeat the same content for standing a chance of being placed into a long–term store where it remains more or less permanently.
As for the design of the interface, the way information in presented aim at gaining the user's attention, stimulating the recall of information, facilitating also a faster and more efficient scanning of the screen. According to Wegner (1988) the scanning sequential order is predicated upon the eye movement, from top to bottom, from left to right, from a larger image to a smaller one, from an saturated color to an unsaturated one, from a nonsymmetrical to a symmetrical form, from a moving object to a stationary one. In conclusion, eLearning interface must follow these suggestions if it is to provide an efficient learning process.

In the face of evidences, we must admit that the face-to-face classroom provides a higher chance to deliver the favorable intimacy and immediacy to learners than the existing eLearning does due to the presence of paraverbal (e.g. tone of voice, inflection, voice volume) and nonverbal (e.g. eye movement, facial expression, hand gestures, body language) cues (Gunawardena, 1995; Warkentin et al., 1997 in Sawai, S., Suan-Sunandha, R. (2004).

E-learning instructors should be aware of the importance of interactivity and to create conversation online through social webs, forums, blogs and wikipedia, in which feed-back is provided, meaning is constructed through interaction and negotiation and a sense of community is created.

Also, from a constructivist point of view, the eLearning experience should develop flexible knowledge and skills, so that the user to be able to construct plans and resolve problems in response to situational demands and opportunities. Therefore, the eLearning platform should simulate authentic activities specific to small and medium sized companies.

These aspects will be taken into consideration in the European ongoing project SIMPEL coordinated by one of the authors of this paper and in the project BASKI.


## 3. Building Virtual Communities of Practice

"Communities of practice are formed by people who engage in a process of collective learning in a shared domain of human endeavor" (Wenger, 2004).
They trace their roots to constructivism (Palloff et al., 1999) involving open-ended questions, learning in social and physical contexts of real-world problems and using collaboration and cognitive tools.

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 disabilities. So the Internet not only makes readily available a vast amount of information and resources but also 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.

| | Role | Description |
|---|---|---|
| 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 tits 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. |
| Knowledge Intermediary Roles | Facilitators | Network and connect community members by encouraging participation, facilitating and seeding discussions, keeping events, and community activities engaging and vibrant. |
| | 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. |
| Community Support Roles | 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. |
| socially inclusive eLearning model for SMEs | 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 1: Typology of community roles** (Adapted from Fontaine 2001)

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 with disabilities.

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 propel to participate in.

**4. Examples**

The main objectives of the project SIMPEL are the analysis, structuring, dissemination and valorization of successful training implementations based on eLearning in forms of training models for SMEs taking into consideration social aspects. The training approaches are life-long-learning oriented and differentiated according to the target group concerned. The models are developed for groups of SMEs within communities of practice having similar profiles.

In looking for a suitable platform to foster the building of a VCoP and to facilitate the processes of scenario – and model – building, the SIMPEL consortium decided on Moodle. The reasons for this decision are, first that Moodle was developed with the explicit intention to support a social constructionist framework of education. Pedagogical and didactic considerations led the technological development and not – as in the case of the majority of learning platforms – the other way round. Consistent with this approach, the system includes a multitude of collaborative tools, such as forums, chat rooms, polls, wikis, workshops with peer-to-peer assessments, collaborative books and many more. Second, the SIMPEL project partners have experience with Moodle using it for training and communication.

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 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 SMEs.

The SIMPEL coordinator started to develop a VCoP within a face-to-face SIPMEL seminar in Gelsenkirchen Germany by using all the virtual networks the project partners have (e.g. created within the two European learning partnerships REHA-INPROD and TRIPARTIT about work and rights of people with disabilities). Within this seminar, frames for socially inclusive eLearning models for SMEs have been discussed. Also, different types of models, which have to be developed in each partner country according to the lows and rights referring people with disabilities and to different cultures, have been pointed.

In BASKI, the eLearning models should be developed together with counselors for sheltered workshops where people with disabilities work for different SMEs which are cooperation partners of the workshops. Many of such people have to learn not only skills for their work but also to (re )learn basic skills they need for a more independent daily life.

Many SMEs prefer to distribute work to such sheltered workshops instead to employ people with disabilities in their organizations because on one hand this way do not need changes in the SMEs and on the other hand because they confident that people with disabilities work very well.

The counselors of sheltered workshops stand to benefit from developing VCoP to better connect SMEs, staff from these institutions, people with disabilities, parents, teachers, social workers, doctors. One of the roles of the counselors is to coordinate resources and services to better fulfilling of the needs of people with disabilities. In such VCoP we have to consider that its sense is the presence of beliefs, feelings and relationships that connect members of the community to each other; it provides a sense of belonging to something that transcends the situational relationships in the sheltered workshop.

**5. Conclusions**

The eLearning model represent a shift away from passive traditional learning to a participative, autonomous learning process in which the meaning is permanently negotiated, feed-back is provided, the time and the context of the learning is flexible and the learning material is adapted to a diversity of learning styles.

It is important to understand the fact that eLearning technologies have the potential of providing a more inclusive and equalitarian information society. It is our main task to assure that these technologies are used to their high potential.

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