Scenario elektronskog učenja u ambijentu praktičnih zajednica

ELearning scenario in Community of practice environment

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Abstract – The phenomenon of social learning is present in human society since ancient times and scientists in that fact see the main reasons for the development of human society. Despite this, eLearning systems do not take advantage of such learning, but are based mainly on the distribution of learning materials and evaluation of knowledge. On the other hand there is undeniable growing popularity of online social communities as well as the application of social software within them. The concept of Community of practice represents an excellent bridge between the education area and social communities. The implementation of eLearning systems that are based on Community of practice is recognized as significant potential that can lead to effective social learning. For this reason, the project Scope is running, project of development Student Community of practice, in order to investigate the effects of social learning and the relationship between technology of social software and eLearning. Scope should provide a learning environment for students and other members of the community where free exchange of knowledge is and providing help between members is stimulated. Through development of Community of practice we expect very significant effects in other areas, especially in the field of e-lance economy and employment of staff. The first results of research conducted within the project Scope are presented in this paper.

Keywords: Community of practice, eLearning, Online social community, Social Networking

1. INTRODUCTION

E learning is a concept describing any type of learning environment that is computer enhanced. As a concept of learning that has been available for a longer period, its advantages and disadvantages are quite enough explored [1]. ELearning systems are very often used in educational institutions as a primer way of education, not only as support of existing classic process of learning. There are a lot of tools which can enable the implementation of eLearning environment, commercial or open source, such as Moodle, Blackboard, etc. Nevertheless, the following question is still actual: is it possible to implement the complete process of education using these systems and tools? The analysis of already implemented eLearning systems and services available at University of Nis, has shown that such systems are used only for learning objects distribution and knowledge evaluation but not for students collaboration using Weblog, forums or other services for collaboration. In that way one very important part of learning, shared learning - learning through practice or experience is missing.

On the other hand, there is a theory according to which the social and cultural factors are most influential in the development process of an individual [2]. People are constantly learning from other people who are in their environment. A similar theory, called ‘Situated Cognition' was set by Lave and Wenger [3], in which they presented the concept of Community of practice. Learning, as outlined in this Wenger-vision Community of practice [4] is achieved mainly through social activities. In such an environment the student acquires his knowledge and competence through connectivity and belonging within communities where he can realize his interests and share knowledge with others. In addition to these communities, there is an interesting community in the area of collaborative learning, identified by Berlanga et all. [5]. They define the so-called ad hoc community as "a community that exists in order to meet the individual requirements in a limited period of time". It should be particularly noted that in these communities, sharing
knowledge is not imposed or under pressure, but occurs spontaneously, whereby the application of technology can help speed up the process and the emergence of community itself. Conditions that each community should fulfill so that the sharing of knowledge is enabled are as follows:

- Community has to have a clear goal;
- Community has to have members with different levels of knowledge in different domains;
- Community has to track all member’s activity and to measure performances based on community trust upon each member;

Human life as well as social communities have got a new dimension with technology development. Digital community or social community available on Web, are today more and more in focus. Regarding this, Tim Berners Lee notes that the Web is more a social creation than a technical one, and it is designed for a social effect, to help people work together. According to Tim Berners Lee, the ultimate goal of the Web is to support and improve our Web-like existence in the world [6].

Based on specified facts about not well researched social character of existing eLearning systems as well as the fact that education process is placed in digital social community, an online community, named „Scope“ (Student Community of practice) is developed.

By developing Community of practice for eLearning system we wish to research effects of social connections on education process as well as to find out if the idea of free knowledge sharing is sustainable in university population despite significant differences with existing economical model. Competency will not be based on protecting personal knowledge any more, than quite opposite: trough knowledge sharing and open online collaboration. Community members, who own and share knowledge with other members will have higher rating and thereby higher competency comparing with others who keep their knowledge. The second aspect of our research is finding possibility to use Community of practice and accumulated knowledge about personal knowledge for other kinds of connection between people, firstly on job market and human resources business.

In this paper we put forward the results of the first phase of research, which consists of developing practical community as well as defining functional design of the environment of online social community that can respond to the above requirements. The paper is organized as follows. The first part presents the theoretical basis of Communities of Practice on which developing of Scope - Community of practice is based. In the second part of pape is presented the system architecture and a description of technologies and services implemented within the system. In the context of the architecture, the characteristics of electronic portfolios are presented as well as a description of the role of emerging community members. At the end of the paper, we presented the existing research results of practical application of the concept of online communities and social software in the field of education, in the form of a conclusion. Also we presented the future steps in the development of Scope Community of practice, particularly the implementation of trust on which the whole concept is based and which is a key prerequisite for the use of such systems within the "e-lance" economy.

2. COMMUNITY OF PRACTICE

The term Community of practice has only been recently in use although the phenomenon is present from the foundation of mankind and their need to learn in the community. It turns out that this concept is a useful perspective in the field of knowledge and learning. This part of the paper aims to explore what Community of practice (CoP) is, its theoretical basis and why researchers and experts from various fields and in different contexts see this community as useful in the process of learning and sharing knowledge. In addition to this part of the work, the relationship between online communities and Community of practice are analyzed as well as the possibility that online communities represent a functional environment for the realization of communities of practice.

According to Wenger and his theory of learning within the community, learning is a social process, so it can be seen through the involvement and contribution of each individual to community, which he belongs to. The basic assumption of the theory of Community of practice is, "the engagement and involvement of individuals within the community is the basic process through which we learn and become what we are“ [3].

Communities of Practice are formed by people who are involved in the process of collective learning in the shared domains of human behavior, such as, for example, a group of artists seeking new forms of expression, a group of engineers working to solve similar problems, a group of students who prepare a certain exam, a network of surgeons that explore new techniques, a group of inexperienced managers who help each other, etc.. Therefore, Community of practice is a group of people who have common interest, problem or passion in a particular domain and who want to gain knowledge in the appropriate area or expand existing knowledge to specialize in a particular area [4]. Participation in community is voluntary and open to all who are interested in a given area or topic. Community development is based on mutual interest and interaction of participants, which means that it is impossible to create a community without the active participation of people [7].

On the other hand, as is proved by Wenger [7], not every social community or group is a Community of practice, because otherwise this concept would lose its meaning. There are certain characteristics that must be identified, so that a community could be classified as Community of practice.

Community can be considered as Community of practice if it is formed around the corresponding domain, has an
interactive community and owns divisible knowledge and experience, while basic features can be explained as follows (modified from [8]):

Domain – Community of practice is not a club or a network of friends. It has an identity defined by divisible domain that represents the interests of all members. Membership in the community implies a commitment to the area and therefore a certain level of competence in a given area that differs members of the community from other people. The aim is to improve community knowledge of the whole community through the exchange of knowledge in a defined area.

Community - to fulfill their interests in the domain, members of the community join together and through their activities and discussions share information and help each other. They build relationships that enable them to learn from each other. Web site is not a Community of practice itself. Also, the same job or the same position does not make Community of practice, unless members of the community have the opportunity to learn from each other through interaction and thereby advance.

Practice - Community of practice is not only a Community of Interests or people who, for example prefer a certain kind of films. Community members are practical experts. They develop shared resources such as experience, ways to solve specific problems that often occur, in a brief and divisible way. This requires time and sustainable interaction. Exchange of shared experiences should be more or less self-conscious.

The combination of these three elements form a Community of practice.

3. VIRTUAL COMMUNITY OF PRACTICE (VCoP)

Prior to information technology, the term Community of practice related to a group of connected people who usually lived in the same area [9]. With the development of online tools that allow people to exchange ideas in a virtual environment, the concept of face to face community is enriched and expanded with virtual interactions. These online communities could include people who know each other and share the same living space but at the same time are able to communicate on an international level with anonymous participants. Such communities are called online or virtual Communities of Practice and include the online platform in which people share their knowledge and interests in a virtual basis or through online communication in the appropriate domain. In this case, communication and sharing of knowledge is supported by software tools, which are often called social software. These tools enable cooperation and collaboration without time and geographical constraints, which is considered a key factor for Learning on Demand and Just in Time learning as the characteristics of Communities of Practice.

As already emphasized in the paper, members of online Community of practice must not know each other but their activities still adhere to the basic concept of Community of practice defined by Wenger [7]. Considering the theory of social learning and characteristics of the social software it is obvious that there are great similarities between these two concepts. First of all, both concepts are directed towards people and require their active participation and engagement on which their success directly depends on. In addition, both support the concept of shared interests of the people. It should be emphasized that the success of any technology depends on whether it is supported in the respective community as it is spotted in Wenger [10]. Social software is essentially entirely oriented towards the community and therefore has broad support within it.

From the standpoint of technological requirements, virtual Community of practice can be realized through the appropriate Web site with implemented services for collaboration and administration of members, shared work space, shared document repository, search and the creation and management of communities. Considering these requirements, the conclusion is that by social software, almost all the listed requirements for implementation of VCoP could be realized.

Because of these similarities it is interesting to study whether the virtual communities based on social software solution can be considered as Community of practice and support the learning process organized within it. In the literature there are different interpretations of these concepts. Given that the majority of research is still in the description phase, it is of great importance to precisely define these concepts and relations between them. In relation to the first part of the question, dominant idea is that social software is generally treated as an additional channel for communication and not as a Community of practice itself. A similar conclusion was reached by Johnson [9] who believes that virtual communities can only represent practical support to communities instead of being Community of practice itself, which implies that the technology used in virtual communities is only the means for their implementation. Regarding the second part of question, undeniable fact is that social software is still supporting learning in practice.

The general conclusion about online communities and social software on the one hand and online Community of practice on the other is the following:

- Technologies of virtual communities are developed from existing tools through their active use by community members
- While there are tools that support the Community of practice, there is no technology with which it is possible to entirely realize Community of practice
- The main potential of the Community of practice are not or should not be tools to support them but the people who belong to the virtual community.
- Efficient technology is only part of development process of successful online communities [11].
It can be assumed that, within the Community of practice, emphasis is on connecting people and their active contribution to network development and not on technology.

4.SCOPE OVERVIEW

Project of student Community of practice (SCoPe) has been developed in order to support eLearning at the University of Nis. Community on the one hand supports formal learning through a link with the existing systems of eLearning (in this case it is about Moodle software platform for eLearning) while on the other hand, the emphasis is on informal learning through the development of online communities and access to learning material that can be imported from other media community (Youtube, Wikipedia, etc.). Development of such a designed community allows the exchange of knowledge and the accumulation of knowledge in certain areas, which following the applied social network analysis, represents a huge potential for the entire university, especially in the connecting staff and companies from around the world that have a need for them.

With Scope, students have free access to knowledge and can realize simple communication with other students, professors or institutions within the particular domain. Through Community of practice they share ideas, cooperate with each other and are engaged in one or more groups. In addition to learning within the community, students have at their disposal different resources for learning, which can change in a way that suits them and thus promote the knowledge of the whole community.

The main features of Scope community are the following:
- Activities of the community are directed to knowledge sharing and acquiring;
- Classical relation between teacher and student is changed with community members collaboration no matter which is his role in education process (student also could be the source of knowledge or to transfer his experience in one domain and consume knowledge in other);
- Activities in community are focused to problem solution (Problem Based Learning - PBL) that is learning is happening during the process of solving the problem which student found.

All activities in the Scope, such as sending responses to student questions, writing comments on blogs, initiating research, accumulate in the shared and evolutionary online portfolio. Students who freely share the knowledge and wish to demonstrate and improve their skills, can meet such requirements through their activities in one or more communities. The specific knowledge could be gained on the Web through access to available educational resources such as Wiki, Weblog, learning together, sharing and exchange of knowledge in the community.

The choice of technologies for making Scope Community of practice is managed by the following requirements: ease of use, flexibility, the ability to adjust to the demands of users and a simple and effective communication between users of the system. We considered several solutions, from the development of completely new software product to the implementation of the system using ready-made open source solutions. After the analysis of available products in the field of course management system as Sakai and content management systems such as Joomla and TikiWiki, we decided to use Elgg platform for the development of online communities. The choice is entirely logical if one takes into account that the objective of the whole system is support of informal learning through learning in the community.

Using Elgg platform we have developed a community that is oriented towards the solution of concrete problems. Students are organized into small groups specialized in specific domains within which they exchange the materials, ideas and experiences or ask specific questions and present problems that are encountered in their work. They use mail, chat and other communication tools such as wiki, blog and forum for the solution of concrete problems. In addition, Scope platform is completely open ended to allow communities to connect with existing systems for electronic learning, such as Moodle which was one of the conditions for implementation. The main feature of Scope Community of practice is full orientation towards the users and support of all the requirements of shared learning through the development of a personal environment for learning. This environment can be defined as a system or concept that helps students to control and manage their own learning process. This way, students can:
- define learning objectives;
- manage the learning process and necessary facilities;
- communicate with other participants in the learning process,
and thus achieve the planned objectives.

Personal learning environment is not a type of software but a new approach to using technology for learning [12] or a collection of free, distributed, Web-based tools, mainly concentrated around the blogs, which are interconnected and which group content using RSS feeds and simple HTML scripts [13]. The four basic characteristics could be distinguish in almost all definitions of a personal learning environment:
- Individual control tools and content;
- Content aggregation and collection;
- Service integration;
- No spatial and temporal constraints.

The following services are used in the personal learning environment of Scope Community of practice (Figure 1):
Profile (User profile) is the basis for the creation of user digital identity and e-portfolio which will be discussed in more detail later in paper. In addition, the user profile is the basis for the realization of economic vision of Scope Community of practice since it is based on shared and evolutionary user profiles. Profile reflects the status and needs of each individual within the domain where he belongs. It is essential that every member can easily find the appropriate domain within which he wants to progress and achieve full functionality. User profile within the Scope Community of practice is realized using Foaf standards for the description of user profiles and connections with other people based on the RDF.

Blog (Weblog) is a form of a Web page that contains articles similar to posts in chronological order. Blog can be related to an individual or small group of authors who are in some of the online communities, formed around a particular domain.

File repository allows storage of different types of files that can be support in the exchange of knowledge and ideas.

Tagging is a process in which users assign tags to objects in order to share content with other members of the community. The process is also known as folksonomy and is directly related to the social bookmarking, method that allows storing, organizing, search and management of meta data (tags) by which users mark a Web page. Search tags in Scope Community of practice make an excellent mechanism to find community members or groups with similar interests as well as monitoring their activities in the long run. To achieve the planned goal of learning within the Scope Community of practice it is necessary that the system is developed using technology of Semantic Web. One of the planned mechanisms is tagging objects for learning and user communities with ontological-based tags. This way, it would be possible to connect formal knowledge represented by domain ontology with informal knowledge that is gained through the process of social labeling.

RSS (RDF Site Syndication) is a technology that allows users to search a list of changes in blogs, tags, communities and other services from Community of practice. A user who is logged on to the appropriate RSS feed, gets information about the names of new items, their short summary and the URL of any changes.

Access Control allows different levels of access to content for individuals or groups within the Community of practice. In Scope Community of practice, users manage their own security because there are mechanisms for defining access to each level of community organisation. It is possible to create an unlimited number of communities which can define public access to their contents such as documents, discussions and other activities, or to keep them away from the public eye.

Online community enables students to connect to the exchange of knowledge around common interests and domains.

Search is one of the key mechanisms of Scope Community of practice that allows users to search resources whether it is a learning material or community members or groups that are formed around certain domain.

A special feature, which is enabled using Elgg, is the possibility of environment adjustments according to the needs of each individual or group.

5. SCOPE MEMBERS ROLE

Implementation of environment for the Community of practice represents only the beginning and prerequisite of its establishment. Community of practice begins its life only when people connect through the domain community and begin to actively work within them. Survival and maintenance of community is possible only if all members have clear and achievable interests and if they are focused on achieving common goals. Also, for the success of community of crucial importance is the manner in which members experience the community, how much time they spent in community activities and whether the community is able to evolve over time.

Members of the community can roughly be classified into those that provide knowledge (Knowledge Providers) and those who use or consume knowledge (Knowledge Consumers). One person can have different roles in different domains: for example to be knowledge provider within one domain while a consumer in the second. On the basis of activities that members achieve within a certain domain, we can classify the members of Community of practice as active, casual, peripheral and external subjects.

On the other hand, according to one’s knowledge in certain domains of community, members can be observers, beginners, experts, leaders, coordinators and freelancers. The leaders direct other members to be focused on short- and long-term goals and at the same time, if necessary, raise the energy of community organizing new events and
activities. Coordinators are tasked to assist members of the community, advise them, connect with other members of the community and constantly stimulate and encourage interaction between members. Experts are experts in the appropriate field. External entities are usually agents of the company, HR managers who are in charge of finding adequate personnel according to the customer requirements, who would be involved in specific projects or activities.

The basis of the community are of course all of its members, regardless of their roles, because without them, there is no community. Starting as the newcomers on the outskirts of the community, members of the community evolve to average users who thus gravitate toward the center of the community and that at some point on the basis of their activities become experts in the appropriate domain and thus gain a central role. Process of the student evolution in the community is a learning process in which students become more aware of the facts about the community.

6. CONCLUSION

The paper presents the first results of research within the Scope project, developing Community of practice of students. In this phase, we implemented personal learning environment that is based on the Elgg software, and which aims to improve the process of social learning among students and other users of the system. Different services are available to students in the Scope Community of practice such as Weblog, chat, forum, online community that can be formed around different domain, the digital identity of each user, a mechanism for searching for learning materials as well as other members of the community based on social tagging. The system was developed so that it can identify, search and recommend relevant materials as well as individuals and communities that exist within the system that can help in solving of certain learning tasks, based on user profiles and the specific task of learning. It should be emphasized that the focus of developed practical community is oriented towards customers and the most important effects of the system are expect from improvement of social learning. However, Scope Community of practice cannot be considered as complete environment for eLearning since it doesn’t contain a system for course management. Considering it’s openness, connection to other standard course management systems in the area of e-learning is not a problem, as demonstrated by the Scope Community of practice integration with existing Moodle course management systems. The conclusion is that Scope is the missing link to complete eLearning process, since in the existing systems, the concept of social learning does not apply to a sufficient extent. It is important to say that Scope has just begun its development and the positive effects of the system implementation should yet be expected.

The next phase in the implementation of Scope Community of practice means expansion and provision of community sustainability, as a very important step in our opinion. First thing is the implementation of confidence in the Scope Community of practice which means testing the key factors that customers consider when making decisions whom to believe in the learning process? User profile will be extended with the identified attributes and the trust will specifically refer to each domain in which the user is active.

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