ONLINE PRESENCE FOR LEARNING

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ABSTRACT

This paper focuses on presenting the objectives of the "Online Presence for Learning" (OP4L) project. The development of different kinds of services for the benefit of online learners based on their online presence and providing support for advanced, context-aware Learning Process Management (LPM) within Personal Learning Environments (PLEs) is the goal of the project. OP4L project uses an innovative technological approach. It offers new ways of combining Social Web presence data and Semantic Web technologies to provide advanced support for managing online learning resources and processes within personal learning environments (PLEs).

I. INTRODUCTION

Taking into consideration the widespread and very enormously used social networks, social web sites instant messaging (IM) tools, the number of social activities is becoming significantly large. In the common services, users use, change and maintain their profiles to present themselves to the social environment. However, the services related to frequent and direct communication, often incorporates users' temporary state in the profile including custom messages on IM platforms and social networks, as well as description of availability and/or willingness to chat. Additionally, visual representations known as avatars could be used as a representation of the user's online persona [1]. This kind of activity can be represented simply by creating an image of a users' state in the online world. This image in fact denotes the users' current presence status to the online community. Online Presence in fact refers to temporary descriptions of users' presence in the online world [1]. Easing the communication and collaboration of online learners using online services based on their online presence, is actually the focus of the project "Online presence for learning" (OP4L) [2].

Online presence is provided by developing different kinds of services for the benefit of online learners. The services should provide learners high-quality recommendation regarding the learning activities to be taken, the learning content to be used, and/or who can be contacted for collaboration and/or help provision. The learner's current learning context and the state of online presence of members of the learner's social graph (the network of online connections) determine the recommendation of relevant learning resources (both digital and human) that would be provided [3].

To achieve this goal the project is focused on Personal Learning Environments (PLEs) as an increasingly important new concept in higher education. The most important and useful characteristic of PLEs is the approach of an autonomous learner taking control of and managing his own learning process [4]. The basic idea is to obtain selection and integration of different tools and services comprising a learning environment fully customized to the needs of an individual learner [5].

In the traditional classroom learning environment, the students' communication is supplemented with the nonverbal communication such that as body language, facial expressions, physical proximity and dress to establish relationships. In the online learning environments and online communication, this nonverbal supplement is missing. But in

PLEs the concept of global online presence is of significant importance. This concept means student's online presence expressed on different social tools integrated into his/her PLE. In fact, giving the students information about their peers' activities, including availability for chat, information about work overload, emotional state, current location, and many other information, depending of the social tool they are using in the given moment, this global online presence can overcome problem of the missing nonverbal communication points, and even provide them in such environment [5].

The OP4L project team makes an innovative approach in proposing new ways of combining social web presence data and semantic web technologies to provide an advanced support for managing online learning resources and processes within PLEs. Semantic web technologies are very significant for improving the state of the art in collaborative learning on social web. They also play a crucial role for interrelating existing and/or discovering new knowledge over the learning processes (relationships, resources). This project provides a strong innovative potential in the novel interactive and adaptive support for both learning resources and processes. The research done within the project framework is directed toward several key fields. The project establishes studies of concepts of online presence, specifically on the context of online learning environments. Studies are made in the context of pedagogical issues regarding PLEs with accent on simplified interactivity, collaboration and social learning. Furthermore, new algorithms for context-aware and online-presence-aware recommendation of relevant learning resources were proposed. The DEPTHS PLE [6] was extended to include online presence to evaluate how this tool will enable learners to collaborate.

II. Background

Different learning systems, tools and services are part of the existing learning practice. They are enhanced continuously, and adopted so that can improve and make easier the learning process. However, they have common problem with the current, so called, "fragmented" approach. The problem lies

on the lack of means of this approach for providing the integration and exchange of information about the learners' activities within the individual learning systems as well as the learning artefacts connected with and produced by these activities.

In this context, the new paradigm of Personal Learning Environment (PLE) comes as a replacement of the "walled garden" learning environments paradigm which denotes the access of the learner to the different services and/or resources is strictly controlled by the learning system. With the objective to provide the learner a possibility for accessing the content, assessing the knowledge, building learning competences, collaborate with the peers, PLE enables learner's interaction with varied systems, tools and services.

There is one very important concept within this context, the learners' awareness of each other's online presence. This is especially important for the collaborative learning environments which widely spread simultaneously to the increasing acceptance of the modern pedagogical paradigms.

III. Partners

The participants from Serbia, Macedonia, Montenegro, France, Slovenia and Austria are involved in the project. The following universities or institutions are part of the project: University of Belgrade and the University of Kragujevac from Serbia, the Mediterranean University from Montenegro, Ss. Cyril and Methodius University from Republic of Macedonia, the Salzburg Research Forschungsgesellschaft from Austria, the Henri Poincaré University from France and the University of Maribor from Slovenia.

IV. Research and development

The OP4L project is conducting research in several related fields:

A. Online presence

The project team is interested in how online presence can be used to improve learners' efficiency. Can online presence ease the communication and collaboration of online learners? Is online presence applicable to existing PLEs? What are the

educational benefits of including online presence in PLEs? These are just some of the questions that the team is focusing in this particular field of research. This study is investigated in the context of social semantic web technologies and tools and their educational applications.

B. Pedagogical issues underlying PLEs

This part of the research focuses on the methods which are used in the educational processes utilizing PLEs. Including PLEs in the educational process dramatically changes the way information is exchanged. In this context more active and collective-based forms of pedagogies are of interest, where the learners are exposed to higher levels of autonomy, creativity and social connectedness. Learners are more likely to collaborate and coordinate through out the process of studying. The concept of PLE assumes the learner is active and takes initiative in learning and independently is managing his/her knowledge and competence. Learners are assumed to be proactive about their learning process in terms of communicating, sharing ideas, commenting, improving, discussing and thoroughly analyzing each others ideas. Specifically, the pedagogical assumptions of advanced online learning environments, particularly, in the context of PLEs are interactivity, social learning, collaboration, learners' autonomy and self-regulation.

C. Development of ICT models for online presence

Developing ways of presenting online presence to learners of their social network is another researching target. The goal is to develop models the raise learner's awareness of each other's online presence in online collaborative learning. This can influence the level of communication and collaboration among learners. The system can better adapt to learner's interaction with his/her social network better by being aware of learner's online presence. It can help the learner to get in touch with other learners or teachers, which can aid the learning process. Additionally, the online presence data allows for higher quality recommendation. For example, the system if a user is currently stated as busy, then the system would not recommend contacting that user since he/she

probably does not want to be disturbed at that moment. The models for exchanging online presence information are the key goals of this research topic.

D. Learning context modeling

Learning context is about the environment, tools, resources people in terms of social networking and learning activities. Context in learning systems is mostly characterized by the learners, learning resources and learning activities which are applied in a specific pedagogical approach. In terms of OP4L learning context is related to the concept of online presence, which is the key aspect of the entire project. Online presence in e-learning cannot be separated from the learning context as a vital part of any online learning situation. The project develops, improves and refines an advanced set of ontologies to model the learning context.

E. Recommendation of relevant learning resources

Context-aware and online-presence-aware recommendation is the primary focus of OP4L project. By high quality recommendation algorithms the learners experience a better educational process. The project develops and demonstrates the use of specific algorithms for context-aware recommendation of learning resources. There is a PLE called DEPTHS [7], which is meant for collaborative learning of software design patterns.

A typical scenario for learning in DEPTHS is a project-based approach with collaboration and communication among learners and teachers. The teacher defines a software design problem which has to be solved by the learners. The problem needs to be solved in a workshop-like manner where the learners have to perform several tasks such as brainstorming, creating and submitting solutions, evaluating and commenting each others' solutions. These activities tend to push learners towards higher quality solutions through mutual collaboration.

During the brainstorming a learner has first to read and analyze the proposed problem. Then, he needs to present and explain his possible solution ideas to the other learners. He should engage in commenting and analyzing other learners'

ideas and discusses about them. During this process learners need to gather and read related resources about the problem, to expand their knowledge of the subject. Teacher usually put time limit during which the brainstorming is expected.

Good practice is to provide learners with previous works on similar software design problems. This would give new ideas and might lead learners to different approaches to the design creation. Additionally, exploring previous work might inspire critical thinking of their ideas. It can also help learners to think about possible advantages and disadvantages of different approaches.

After the brainstorming phase finishes, the learners need to implement their acquired knowledge. They need to create their proposed solution using some software modelling tool, which in this case is ArgoUML. Using this software, learners implement their solutions and upload them on the system.

The final learning phase is the evaluation. Learners are asked to evaluate the others' solution as well as their own solutions. They need to critically reflect on their own and others' contributions and acquire knowledge about other possible solutions. This is a very collaborative learning process in which learners can find a way to modify and improve their solutions.

Within the research of the OP4L project, DEPTHS has been extended with a module for online presence (Fig. 1). This is used to demonstrate how incorporating online presence in a PLE can influence the educational process and greatly help the learners to interact, exchange possible ideas, comments, questions and other resources.
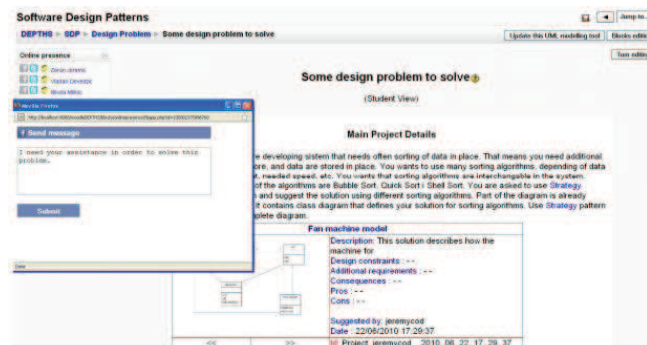

Figure 1. Preview of DEPTHS with integrated online presence

V. CONCLUSION

The "Online Presence for Learning" (OP4L) project was presented in this paper. The project is focused on incorporating online presence in PLEs as a vital part of learner's communication and collaboration. For that purpose, different research activities have been planned and many of them have been realised with aim to improve the current online educational process. The most important is to ease the communication and collaboration of learners, to make an environment through which the interaction with the people for the learner's social networks in seamless and coherent manner is easier.

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