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# An Application of Social Media in eLearning 2.0

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## **An Application of Social Media in eLearning 2.0**

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### **Abstract**

*The research area of this paper is an application of social media tools of in higher education. Social media can be described as Web 2.0 technologies and practices that are used for sharing content, opinions and experiences. The application of social networks, wikis and blogs enables improvement relations between the participants of the educational process. In this paper we present a model for application of social media in e-learning, developed in scope of Laboratory for e-business, Faculty of organizational sciences, University of Belgrade. The practical part of the paper describes the use of wikis, blogs and social networks, as a complement to the existing e-learning process, in a higher education institution. Integration of an edutainment Facebook application with Moodle learning management system is shown. The main goal of this paper is the improvement of quality of e-learning process through application of social media in higher education.*

**Keywords:** *e-Learning 2.0, Web 2.0, Social media, Social networks, Edutainment*

## **1. Introduction**

With the development of information and communication technology there has emerged a need for the improvement of the educational process. E-learning has been widely used in universities and higher education institutions as a supplement to the traditional face-to-face classroom learning environment as well as in the continuing education and distance education institutions (Tetiwat, O. & Igbaria, M., 2000). The e-learning is a complex system that includes distance teaching and learning, separated in time and space, as well as teaching materials that can be in various forms, the individual or group learning process, the tutorial and interactive work (Despotović, M. & Radenković, B., 2005). It is an interactive process between teachers and students through electronic media with an emphasis on learning, as the media are just an additional tool that complements the process.

The use of a Learning Management System (LMS) provides students and teachers with a set of tools for improving the learning processes and managing them (García-Peñalvo, et al., 2011). LMS is a set of standardized components for learning, which are designed to integrate learning with the existing information systems within an organization or through the web portal for learning. Moodle learning management system is one of the most frequently used open source products that is flexible and adaptable to users and is designed to help teachers to create quality online courses (Wharekura-tini, H. & Aotearoa, K., 2004; Cole, J. & Foster, H., 2007). It is well documented, has a strong support for security and management, and is evolving towards Information Management System/Shareable Content Object Reference Model standards (IMS/SCORM) (Brandl, K., 2005; Zenha-Rela, M. & Carvalho, R., 2007).

Nicholson described that the e-learning has now been shifted into a new generation that focuses on more learner engagement and social learning and provides learners with collaborative and learner-centered online learning environments (Nicholson, P.A, 2007). This new e-learning platform is called e-learning 2.0 (Yau, J., Lam, J. & Cheung, K.S., 2009).

Informal learning today becomes the dominant form of learning (Tuomi, I., 2007). The principles of the Web 2.0, like the ability to connect people, to distribute information worldwides and discussing ideas with people from all over the world, have similarities to modern educational theories (Ullrich, C., Borau, K. & Luo, H., 2008). Constructivist

Perspectives (Palinscar, A.S.,1998) and Activity Theory (Jonassen, D.H. & Rohrer-Murphy, L. 1999) in particular emphasize the importance of learning active, while methods like cooperative learning (Johnson, D.W., Johnson, R.T. & Stanne, M.B. 2000) and problem-based learning (Dochy, F., Segers, M., Bossche, P. & van den Gijbels, D., 2003) in real-world contexts (situated learning) (Anderson, J.R., Reder, L.M. & Simon, H.A., 1996) as well as learning through games (Edutainment) and entertainment (Bonanno, P., 2007) become more and more popular. Web 2.0 has already been applied to e-learning as “e-learning 2.0”. Therefore, the sharing of information and the enrichment of knowledge exchange among learners can be accomplished through using the concepts of interaction, collaborative learning, and compilation of learners’ knowledge (Wang, H.C. & Chiu, Y.F., 2011).

There is much evidence that social media is increasingly supporting informal learning at home and in community and that informal learning is becoming a vital element of education for learners of all ages (Dabbagh, N. & Kitsantas, A., 2011). Learning in the context of social media has become highly self-motivated, autonomous, and informal, as well as an integral part of the college experience (McGloughlin, C. & Lee, M.J.W., 2010).

In e-learning process, many universities use social media tools, such as: blogs, social networks, wikis, microblogging, RSS, photo and video sharing, podcasts, social news and bookmarking.

This paper shows a use of social network, blog and wiki, as a supplement to existing e-learning process, in a higher education institution. Practical part of the paper describes an edutainment Facebook application created in scope of Laboratory for e-business (Elab), Faculty of Organizational Sciences, University of Belgrade. The main aim of this paper is improvement of the educational process by using Facebook application. From students' aspect, the objectives of this application are to motivate students to learn through game and to test their knowledge from specific online course in such way which is more interesting than traditional one. On the other hand, this application brings many benefits to teachers. Teachers can use this edutainment Facebook application for tracking students' progress through tests, for improving communication with students and for publishing teaching materials in an attractive form. The research questions of this paper are the following: “Are the social media tools applicable in e-learning?”, “Is it possible to integrate social network with learning management system?” and “Can e-learning process be improved by learning on a social network?”.

## **2. Theoretical background**

### **2.1 e-Learning 2.0**

E-learning 2.0 presents an online environment emerged from the development of Web 2.0 (Chow, K.O. & Cheung, K.S., 2008). Web 2.0 is not a technology, but an attitude and social revolution which enables and encourages learners to participate in a socially open environment with rights of content creation and edition (Yau, J., Lam, J. & Cheung, K.S., 2009).

Five broad characteristics of Web 2.0 were identified (Duffy, P., 2008). First, Web 2.0 is a platform that allows users to access and use via Internet. Second, it has a user-friendly and interactive interface. Third, its design encourages users to participate and publish ideas in it. Fourth, it is a social networking tool that enables users to provide feedback and exchange ideas collaboratively. Last, users have content ownerships in the site and rights to control over them. In other words, Web 2.0 represents ideas of learner-centred, collaborative and interactive learning (Yau, J., Lam, J. & Cheung, K.S., 2009).

By linking the ideas of Web 2.0, e-learning 2.0 is characterized by learner-centre, content access and content creation. To facilitate learner-centred learning, e-learning 2.0 encourages learners to actively interact with other users in the learning process by using technologies such as social media tools. E-learning 2.0 emphasises open communication, freedom for sharing, social networked learning and socially constructed knowledge (Chow, K.O. & Cheung, K.S., 2008).

## **2.2 Social media**

Social media is a 21st century term used to broadly define a variety of networking tools or technologies that emphasize the social aspects of the Internet as a channel for communication, collaboration, and creative expression, and is often interchangeable with the terms Web 2.0 and social software (Dabbagh, N. & Reo, R., 2011a). Examples of social media include experience and resource sharing tools such as Delicious, WordPress, and Twitter that enable online/social bookmarking, blogging, and microblogging; wiki software such as PBworks that enables the creation of collaborative workspaces; media sharing tools such as Flickr and YouTube that enable social tagging; social networking sites (SNS) such as Facebook and LinkedIn that enable social networking; and web-based (cloud-computing) office tools such as Google Apps that enable document and calendar sharing and editing among other things (Dabbagh, N. & Reo, R., 2011b; Kitsantas, A. & Dabbagh, N., 2010).

### **2.2.1 Social networks**

Social network sites have been defined by (Boyd, D.M. & Ellison, N.B., 2007) as web services that allow individuals to construct public or semi-public profiles, articulate a list of other users with whom they are connected, and view and traverse connections made by others. In their original form, social networks represent virtual spaces for social interaction, maintaining relationships with friends, colleagues, for public affirmation of one's own status in the group. Despite the absence of a common physical space community and the people who make it, online social networks can be characterized as a global virtual community, or website that connects a group of people in one place, for the purpose of communication, exchanging opinions, ideas, chatting, dating, making a new business or personal contacts, activism on the web for a common goal, etc. Social networking sites are online places where people go to:

- participate in social activities
- build up networks
- share information with others

- ◆ find new friends
- ◆ manifest their emotions in public
- ◆ maintain existing relationships.

People use social network sites for a variety of reasons among which the ease of use, rapid updating, analyzing and sharing the continuously increasing information, reflecting on daily life, establishing and maintaining spontaneous social contacts and relationships, supporting informal learning practices with interaction and communication and facilitating delivery of education are the leading ones. Social networks can be used for passing time, learning about other people, maintaining social relations, following changes at the university, class or school enrolled. On the other hand, social network can be oriented towards work-related contexts, establishing new relationships, or reaching those with shared interests such as in music or politics (Ellison, N.B., Steinfield, C. & Lampe, C., 2007). They are usually based on the Internet or mobile technologies.

Social networks connect people with different interests, and the use of social networks in business and educational environments is currently growing (Mayer, A., 2009). Universities can use them to improve their educational process.

### **2.2.2 Wikis**

Wikis are one of the many popular social media tools that facilitate collaborative work. Users can quickly and easily write, edit and link HTML-based documents with no need to know how to write HTML codes (Heafner, T.L. & Friedman, A.M., 2008; Lai, Y.C. & Ng, E.M.W., 2011). Wikis also provide a history facility to keep track of the modifications made by different users, and to enable changes to be reversed if necessary. Wiki pages can be created and edited by using simple text editing facilities that are provided as part of the wiki software. However, wikis can also be set up so that only certain users can access or edit the pages (O'Leary, D.E., 2008).

In an educational context, wikis can offer many benefits (Richardson, W., 2006; West West, J.A. & West, M. L., 2009). Wikis are collections of collaboratively authored web pages and can be powerful tools for collaborative and group work. They allow students to work together in a shared environment, with the progress of the work visible to all students, and to the teacher, at any time. This visibility and sense of creativity and progress can be highly motivating (Trentin, G., 2009; Wheeler, S., Yeomans, P. & Wheeler, D., 2008). Students can provide feedback on each others' work, and help to improve it (Lundin, R.W., 2008). Wikis develop collaboration among students, encourage writing skills and turn isolated e-learning in a dynamic and interactive learning experience. Wikis also allow for web documents to be structured and organized in different ways, and to be updated regularly. They therefore provide a valuable way for groups of students, and their teachers, to collaboratively develop and maintain learning resources. In principle, wikis offer a way for learning to become more student-centred and democratic. Learners can use the wiki to share and explore their ideas, without the need for a teacher or any individual student to take a leading role (Trentin, G., 2009). Some of examples of application wikis in teaching are:

- ◆ creation of web pages
- ◆ creation of school projects

- tracking group projects
- collecting data
- space for brainstorming
- making collection of links and list
- online edition of the whole collegiums.

In scope of Laboratory for e-business, wiki is used as Moodle LMS activity. Students can create and publish their own web page with no need to know how to write HTML codes. For students, application of wiki in teaching enables ease of use, quick change of content and easy navigation structure.

### **2.2.3 Blogs**

The blog is a text-based online environment which allows embedding links to other online resources, and in which the author's posts appear in reverse chronological order (Downes, S., 2004). This permanent archive of the blog activity creates context for the readers who can refer back to earlier entries. Most blogs enable feedback from the audience by means of comments subsequent to the main entry.

Blogs are being increasingly used in higher education. There are identified two main assumptions of blog research and practice in higher education:

- blogs can facilitate peer and group interaction permeates research in this area
- social construction of knowledge, which happens by means of sharing knowledge, asserting different perspectives and interpretations, and critiquing viewpoints (Leslie, P. & Murphy, E., 2008).

There are three defined ways in which blog conversations can help instructors in better contextualization of instruction (Halic, O., et al., 2010):

- through reading the blogs, teachers better understand their students' struggles with the course materials and design ways to help students overcome barriers to learning
- instructors are able to see what students refer to as expert knowledge
- questions that were not answered in class or through course materials find their way onto blogs.

In other words, the blog's archive is readily accessible to instructors as a source of information about student learning, providing a basis for ongoing feedback and redesign of learning activities.

Blog is an effective and convenient social media tool for teaching and learning. Moodle has a blogging tool which is user-based. Each user has own blog, which is not specific to any particular online course. Through blog creation and writing comments, students can direct their own learning, increase their engagement in course material, and promoted the development of informal learning communities.

From a teaching and learning perspective, blogs have the capability to make student learning transparent and become a space “where a greater understanding of student meaning making can be gained” (Halic, O., et al., 2010).

### 3. Enhancing eLearning 2.0 process with social media

Laboratory for e-business (Elab) exists within Department for e-business and system management, Faculty of Organizational Sciences, University of Belgrade. Primary goal of the Laboratory is to improve teaching and learning processes quality by using modern technologies. Distance education is used as support to traditional way of teaching. The Laboratory provides various services from the area of IT based on following principles: quality, availability and loyalty.

Laboratory for e-business conducts courses on all levels of studies. More than 700 students per year gain access to more than 70 online courses hosted on e-learning system, developed using Moodle LMS. Moodle is an open-source software solution for managing learning processes and activities. It is flexible solution that is extensible for adding new components, modules and integration with other e-learning systems (for instance education portals, business systems) and social media tools. All courses organization and implementation is based on blended learning concept.

For all study level courses, Elab uses modern methods and technologies for improvement existing e-learning process. With using social media tools as a supplement to e-learning process, the concept of eLearning 2.0 is applied. Wikis, blogs and social networks, as social media tools, are used for teaching and learning. Elab uses wiki, as Moodle activity, for collaborative and group work. All Elab's users have possibility to create their own blog in Moodle and to express their thoughts about specific topic related to their work in some of Elab's online courses. As the most popular social network, Facebook is used for educational purposes in scope of the Laboratory. Elab's Facebook profile has been created, as well as groups for undergraduate, graduate academic, postgraduate and doctoral studies, pages of courses and events. Figure 1 shows Elab profile on Facebook.



Figure 1: Elab profile

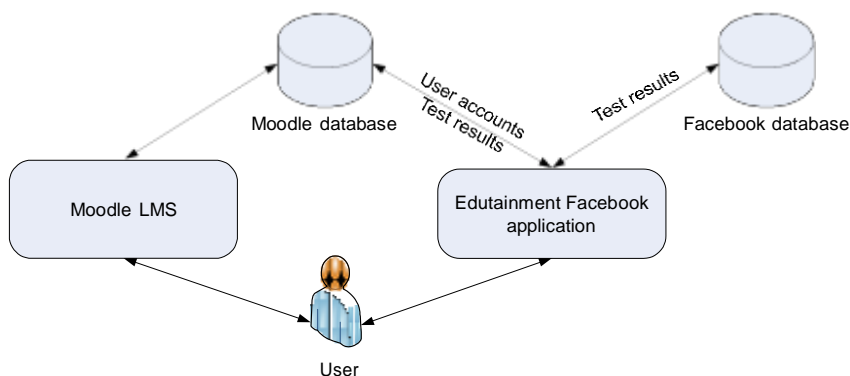
#### 3.1 Model for integration of social media in e-learning

Figure 2 shows model for integration of social media in e-learning management system Moodle. This model has been developed in Laboratory for e-business. Materials from lectures and exercises are available to students in the electronic format. All materials are



placed in Moodle LMS. Teachers have the opportunity for sharing materials and information on social network Facebook. Students can track new information about the time of consultation, the dates, time and place of the examination, etc. via Elab's Facebook profile, groups, events and fan pages of Elab's courses.

Students, who are enrolled in a Moodle course and have a Facebook account, have the possibility to access edutainment Facebook application using Facebook ID. Student receives test with questions from Moodle's database. Test results are stored in the Moodle and Facebook database.



**Figure 2:** Model for integration of social media in e-learning

### 3.2 Application of Edutainment in eLearning 2.0

Edutainment is a term which is used to describe software that has both an educational and entertaining characters (Turban, E., King, D. & Lang, J., 2008). Edutainment represents a hybrid method of education that incorporates educational activities such as assignments and tests with entertainment and is based on multimedia (Buckingham, D. & Scanlon, M., 2005). Typically in edutainment, the game goals match the learning goals and competition is added to make the learning enjoyable (Alessi, S.M. & Trollip, S.R., 2001). Edutainment usually doesn't indicate how the students should apply or assess their knowledge, analyze their own understanding, synthesize their perceptions, however, with this concept, students learn through fun (Charsky, D., 2010). The main goal of edutainment is that students learn through exploration, interaction, and through the repetition of mistakes in such a way as to enter the game whereby they aren't aware that they also learn at the same time (Okan, Z., 2003).

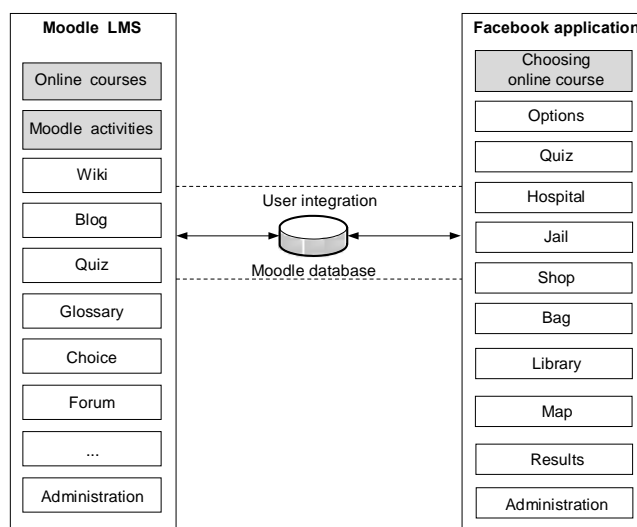
For a successful implementation of the edutainment concept in the teaching process, it is necessary to integrate edutainment with the learning management system. The basic activities of a Moodle LMS do not mean edutainment by itself. The realization of the edutainment concept in the Moodle depends on the types of activities represented in the online course. The type of activity is determined by the material and the types of contents which are taught.

The application of edutainment concept can be implemented in the educational process in different areas. This paper reviews the improvement of e-learning process by

applying the latest trends of teaching. Practical part of paper shows application of edutainment Facebook application in scope of Laboratory for e-business.

#### 4. Implementation

Model for integration of social media in e-learning is implemented in scope of Laboratory for e-business, Faculty of Organizational Sciences, University of Belgrade. Integration of created edutainment Facebook application and Moodle LMS is carried out in scope of Elab. Figure 3 shows the concept of edutainment Facebook application.



**Figure 3:** The concept of edutainment Facebook application

Edutainment Facebook application is created in PHP and it uses Facebook API. It is designed in the form of an educational game. All students who have enrolment on Elab's online courses on Moodle can access to Facebook application through their Facebook account. Students must have the same email address on Facebook and Moodle account for the game access. After choosing Elab's course that student attends on Moodle, they can start the game on Facebook (figure 4).



**Figure 4:** Edutainment Facebook application

In the Facebook application, students have menu with the following options:

- Help desk – students can ask questions about the application
- Find player – students can find other players that use the same application
- Best players – students can get list of the best players
- Forum – students can open new topics for discussion and post comments on the same
- Send message – students can send and receive messages between themselves
- Inbox – list of received messages
- Sent – list of sent messages
- Invite friends – students can call other Elab students to play.

Application contains different levels. Before starting the test, students have possibility to go to library where they can read teaching materials (presentations) related to each level. Students can pass levels by answering the questions from the test. Test collects questions from Moodle database. Figure 5 shows an example of test in Facebook application that contains questions from online Moodle course “Internet technologies”. After passing test of specific level, students can go to the next level of the game. Achieved level can be seen on the map of the Facebook application (figure 6).



**Figure 5:** Example of test in Facebook application



**Figure 6:** Map of the Facebook application with achieved level

## **5. Conclusion**

This paper provides a description of social media and the possibilities of their application in e-learning process. Social media allow users to communicate, to share ideas and collaborate, which proves to be an excellent medium through which students can learn and can be taught. Therefore, recognizing the potential of using social media to facilitate learning among students is a very important issue in the field of e-learning process.

Most attention is devoted to the social network Facebook, as one of the most widely used social media. Integration of edutainment Facebook application and Moodle LMS can be made by using PHP and Facebook API. This application can be applied in any classroom and for different scientific areas. Teachers can change the game scenario according to their needs.

Introduction of concept Web 2.0 in existing e-learning process results with concept of eLearning 2.0. With application of social media tool in e-learning process, learning can become more effective. Application of wikis and blog can encourage students for collaboration and brainstorming. E-learning process can be improved with learning on social networks. In this way, students can be more motivated for e-learning and teachers can track their progress.

Further research will be related to the evaluation of the Facebook application in teaching process and to the collection of the students' results.

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