

Social Networking in the Information Technology Training

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Abstract: *The paper is related to exploration of a didactical model that relies on the new Web technologies to realise the idea of e-Learning 2.0 for training in the field of Information Technology. For the exploration of the didactical model a specially designed e-learning course in Spreadsheets is developed and Web technology tools are integrated to support increasing the learning effects of different training activities. The paper presents a part of the study that shows how the social networking sites can be used to improve different learning effects of different training activities (knowledge assessment, individual work, presentation of primary and supplementary learning resources, etc.) in the Spreadsheet e-learning course.*

Key words: *Social Networking sites, e-Learning, Spreadsheets, Web 2.0, Web 3.0, Facebook, Twitter, Moodle, Information Technology.*

INTRODUCTION

The use of new Web technologies (Web 2.0 and Web 3.0) is changing the environment in which the training is conducted and leads to a new stage in e-Learning where the learning is possible 'anytime', 'anywhere', for 'anybody' and even 'anyhow'.

Many teachers have introduced successfully the use of these technologies in their classrooms [1,6,9,8,7] aiming to develop interaction, communication and collaboration between the students, to encourage communication between teachers and students, to stimulate students' creativity, to increase their motivation for active participation in the learning process, to provide feedback, to take into account the various talents and learning styles, etc. By improving these learning effects they can enhance the overall learning quality and outcomes achieved.

The paper is related to exploration of a didactical model that relies on the new Web technologies to increase the above listed learning effects in the field of Information Technology (IT) training. For the purpose of the investigation a specially designed e-learning course in Spreadsheets is developed in the Learning Management System Modular Object-Oriented Dynamic Learning Environment (LMS Moodle) and various popular Web 2.0 and Web 3.0 tools are integrated for the need of the course training activities [3]. This paper presents a part of the study that shows the use of social networking sites in the proposed didactical model. How the social networking sites can be used to improve different learning effects of different training activities is described by five examples of the developed Spreadsheet e-learning course. The first section of the paper is dedicated to the didactical model and the content of the e-learning course that are also of interest.

SPREADSHEETS COURSE CONTENT. DIDACTICAL MODEL

The e-learning course is designed for studying one of the main topics in the field of IT– Spreadsheets.

Nowadays IT training faces a significant problem due to the diversity and the shortened cycle of appearance of newer and newer versions of the studied software applications: the learning content, as well as the acquired knowledge and skills, grow old too fast.

Therefore, **the content** of the developed e-learning course (<http://pdu.uni-plovdiv.bg/>, see Figure 1), as well as other related elements of e-learning, follow the approach based on "invariance" upon presenting the learning content.

The primary course content is divided into two parts. The content of the first part "Spreadsheets Technology" is structured on the basis of the 'invariant frame' [4, 2], defined as a standard for invariance in the presenting learning content in the field of IT:

- objects model (including data);
- subjects model – participants or users;

- general scheme of the proposed resources and services;
- functional specifications of the software applications that automate the process;
- methodology of using (including different pointviews of users and subjects);
- classification (including evolution) of specific versions of software applications;
- description (based on developed methodology) of the most disseminated in the field software applications;
- visible trends in the technology development;
- application field (including using, experimenting and best practice) in the specific professional field;
- areas of overlapping and integration with other technologies for solving the specific tasks related to the current professional field;
- basic terms and concepts.

The second part of the course is dedicated to the work with the spreadsheet application Microsoft Excel 2010 (MS Excel 2010).

Figure 1. Home page of the LMS Moodle course

Following this 'invariance' approach the knowledge and skills acquired by the course students are more durable. Moreover they need less time and efforts to update their knowledge and skills to work with some different Spreadsheet software application or with newer version of the studied one.

A total of 20 e-learning modules have been developed. They contain 20 theoretical educational resources (129 pages altogether) and 16 resources for evaluation, self-evaluation and individual and team work (a total of 398 questions and assignments for self-evaluation and knowledge assessment).

For the exploration of **the didactical model 11** (eleven) Web technology tools are integrated to support increasing the learning effects of 47 (forty seven) [5] different training activities, including the following:

- presentation of primary learning content;
- providing supplementary learning resources;
- collaboration on projects;
- individual work;
- conducting discussions;
- knowledge assessment;

- evaluation done by the teacher and the other participants in the learning process;
- monitoring of compliance with the time schedule;
- feedback and timely information;
- control by the teacher;
- visualization and presentation of audio and video resources;
- presentation of project and assignments;
- personal knowledge management, etc.

Within the course are integrated blogs (Blogger, WordPress), social networking sites (Facebook, Twitter), social bookmarking sites (Diigo, Delicious), podcasts (VoiceThread, PodOmatic), online office applications, multi-sharing applications (Google Doc, Microsoft Web Apps, YouTube, Flickr, Screenr), etc. in 31 different ways.

Thus, the didactical model implemented in the Spreadsheets course enhances the learning impact by using the new Web technologies for the needs of the learning content presentation and the organization of learning and teaching.

The five examples presented in the next sections illustrate how the use of the social networking sites Facebook and Twitter assures better e-learning quality in relation to various training activities.

EXAMPLES: TRAINING ACTIVITIES USING SOCIAL NETWORKS

In the Spreadsheets e-learning course, the social networking sites are used to support the following training activities:

- providing supplementary learning resources (Example 1);
- conducting discussions (Examples 2 and 5);
- individual work and collaboration (Example 3);
- forming groups around particular topics or interests (Example 4).

Example 1. Using Facebook to provide supplementary learning resources

Providing of supplementary learning resources for different spreadsheet applications useful for students who want to read more information about applications' features and the work with them. To provide easy access to supplementary learning resources and information about Microsoft's spreadsheet application, studied during the second part of the course, the course home page is provided with a link (by incorporation of Facebook social plugin [3]) to the official MS Excel page on the social networking site Facebook (see Figure 2).

The screenshot displays a course interface with a navigation sidebar on the left and a main content area. The main content area is divided into three topics:

- Topic 3: Module LIII Functional specifications of spreadsheet software tools**
 - Lesson: Functional specifications of spreadsheet software tools
 - Video lesson: Examples of work with spreadsheet software tools
 - Additional learning content: Microsoft Excel Web Apps
 - Self-assessment assignment: Functional specifications of spreadsheet software tools
 - Assessment assignment: Google Spreadsheets
 - Collaboration assignment: Microsoft Excel Web Apps
 - Discussion: Functional specifications
- Topic 4: Module LIV Using methodology**
 - Lesson: Using methodology
 - Assessment assignment: Spreadsheet designing
- Topic 5: Module LV Development of various software tools**
 - Lesson: Development of various software tools
 - Collaboration assignment: Web-based spreadsheet - advantages and disadvantages
 - Collaboration assignment: Spreadsheets software tools
 - Collaboration assignment: EditGrid functionalities
 - Discussion: Spreadsheets software tools - new functionalities

On the right side of the page, there is a sidebar with several widgets:

- Latest news:** Add a new topic... (No news has been posted yet)
- Upcoming events:** There are no upcoming events. Go to calendar... New event...
- Activities:** Assignments, Assignments (2/2), Feedback, Forums, Quizzes, Resources
- MS Excel's Official Blog:** Early look at Power BI updates and new customization options Office for Android phone is here! Salesforce, SAP, Uber, Do and SmartSheet add-ins and extensibility solutions for Office 365. 4 updates to Power Query Amazing business productivity through Office 365—Dynamics CRM integration
- Microsoft Excel:** A Facebook social plugin showing a 'Like' button and a 'You like this' message.

Figure 2. Link to the MS Excel page on Facebook

Example 2. Using the social networking site Facebook to conduct discussions

Example 2 aims to stimulate students' creativity, active participation in the learning process and communication between the students. An assignment named "Discussion: Spreadsheets in the future" is added to the topic "Visible trends in the technology development" (see Figure 3). The students' assignment is to use Facebook's built-in social plugin to conduct a discussion on the topic "Future features of the spreadsheet software applications". During the discussion, the students are expected to look for information about the new opportunities that are expected to be implemented in the future versions of chosen spreadsheet application, or to suggest new features which they would like to see implemented. To enable the conducting of the discussion, a social plugin for posting comments is built into the Offline assignment page added to the topic.

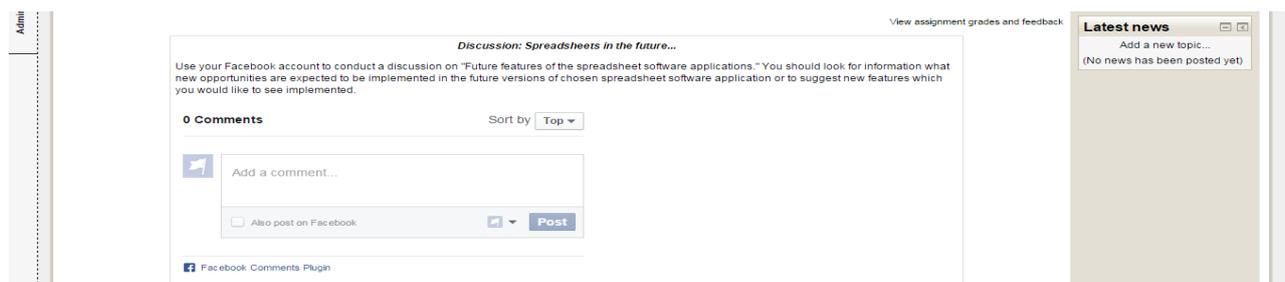


Figure 3. Discussion: Spreadsheets in the future...

Example 3. Assignment for individual work based on posts added on Twitter

The idea in example 3 is to be improved students' research and communication skills collectively. The fact that the assignment requires individual work encourages in addition the students to participate actively in the first assignment part.

The assignment is added in the "Development of various software applications" topic. The students have to work together on creating a list of the advantages and disadvantages of the web-based spreadsheet applications on the social network Twitter (see Figure 4). For this purpose, a user account is created on the social networking site Twitter and a new tweet is added with the assignment name. In the added Online text assignment, the students are given the task to write down an advantage or a disadvantage on Twitter. To access the tweet where they have to put their answers, they use the Follow-me button added to the page [3]. Students need to keep track of posts added by their colleagues and after the list becomes long enough, each of them has to write a short text on the advantages or disadvantages of the web-based spreadsheet applications, using the posts on Twitter.



Figure 4. Collaborative work assignment: Advantages and disadvantages of the web-based spreadsheet applications

Example 4. Assignment for collaborative work in Facebook.

The assignment in example 4 aims to improve knowledge exchange, to stimulate the students' self-studying of various software spreadsheet applications, collaboration and interaction between the students. In the "Development of various software applications" topic the students are given the assignment to study the features of the various spreadsheet software applications. 12 (twelve) open groups are created in Facebook for this assignment. The students have to choose which group to join, then look for

information about the respective spreadsheet application on the internet and post the information they consider useful (features, versions and history, where it is used, video materials illustrating the work with the spreadsheet application, etc.) in the group.

To provide access to the created open groups in Facebook, buttons for access to the groups [3] are integrated into the assignment page added to the respective topic of the educational content (Offline activity type). Clicking on these buttons (see Figure 5), the pages of the respective Facebook groups open in a new window.

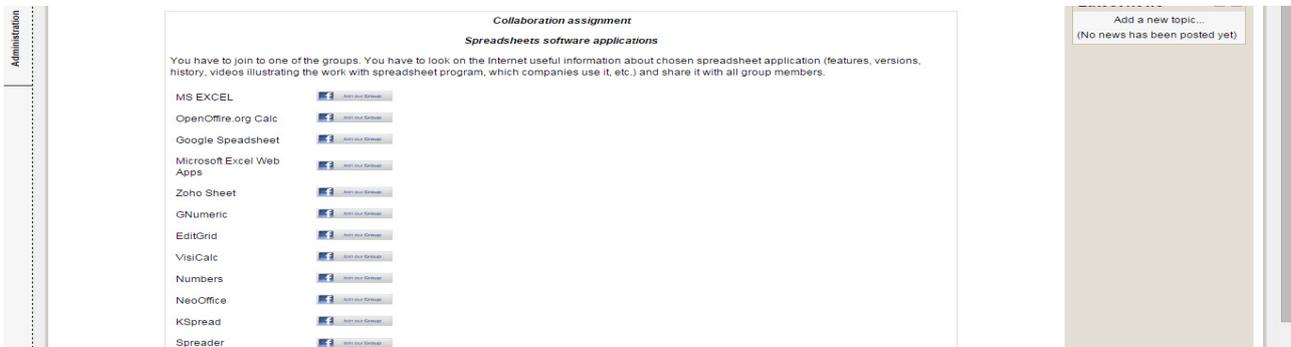


Figure 5. Collaborative work assignment: Spreadsheet software applications

Example 5. Conducting a discussion on the latest features of MS Excel.

The last example aims to encourage collaboration and interaction between students and self-studying. An assignment of conducting a discussion on “The latest Excel feature” is included in the topic “Historical development and Excel versions” (see Figure 6). The discussion has to be conducted using the integrated social plugin Facebook Live Stream. For the purpose of the assignment, an Offline activity type of assignment is added to the description where the social plugin is integrated [3]. Since receiving updated information about the innovations in Excel is essential to the discussion, a Remote RSS block is added to the assignment page to keep track of new publications in Microsoft’s official blog dedicated to MS Excel, as well as the social plugin Like Box to show the latest publications, both in the blog and the page of MS Excel in the social networking site, the content of which is automatically updated when new information is added.



Figure 6. Discussion: The latest Excel features

CONCLUSIONS AND FUTURE WORK

The paper presents a part of the study that proves the feasibility of Web technologies in Spreadsheet training. Presented examples show how Web technologies can be useful for any situation where discussion have to be conducted and accessing information in certain topic areas have to be presented. Web technologies integration into Spreadsheet e-learning course is examined, highlighting how their integration can improve the students’ activity in the learning process, communication and collaboration between the students and how the use of these technologies give the students opportunity to create content

themselves instead of passively receive information from teachers.

On the other hand the learning approach based on invariance in the presenting learning content ensures long-lasting fundamental knowledge based on the primary concepts and principles of IT allowing future self-studying and easy updating of knowledge and skills in a short time.

Finally, the suggested ways of integrating popular social networking sites in LMS Moodle open up new prospects for teachers who want to use Web technologies during the stages of preparation and conducting courses in LMS Moodle.

Some possible **future researches** in the field of integrating Web technologies in LMS are:

- Creating a new kind of educational activities allowing automated adding of social media plugins;
- Creating new blocks allowing automated adding of social network badges to selected pages of the e-learning course without having to exit LMS;
- Studying the possibilities of integrating other Web technologies tools to LMS Moodle as well.

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The paper has been reviewed.