

Chapter 5

Encouraging Teamwork, Web 2.0, and Social Networking Elements in Distance Learning

Mirjana Ivanović

University of Novi Sad, Serbia

Zoran Budimac

University of Novi Sad, Serbia

Zoran Putnik

University of Novi Sad, Serbia

Živana Komlenov

University of Novi Sad, Serbia

ABSTRACT

At the Department of Mathematics and Informatics, Faculty of Science, University of Novi Sad, elements of Web 2.0 have been used in teaching for several years. In particular, this is emphasized in encouragement of teamwork, through usage of Wiki technology within several courses. Initially, those courses were created as a part of a large international project that recommended the use of teamwork. Over the years, additional elements of Web 2.0 were introduced, while employment and utilization of teamwork was largely enhanced and suitably organized. In this chapter, the authors share their experiences with such work, starting from introductory methods of enhancing the chosen learning management system, Moodle, with the mentioned activities, up to looking beyond their simple application and extracting additional value for courses.

INTRODUCTION

This chapter presents the authors', now about a decade long, experience in combining different open source educational tools as means of introducing collaborative activities in teaching at the Department of Mathematics and Informatics at the Faculty of Sciences in Novi Sad, Serbia. This endeavour was motivated by both our belief that collaboration helps promote the development of critical thinking skills and co-creation of knowledge and meaning, as well as the proofs that contemporary literature provides for such a claim. It seems that the inclusion of collaborative activities in a course, for instance to conduct small group projects or case study work, makes a lot of sense. Collaborative learning is especially appropriate for many of courses in the field of informatics, since they often focus on the application of new knowledge to complex and often unstructured tasks.

Teams also represent vital organizational structure for professional software development today, since the increasing complexity of projects has made them unachievable for individuals. Thus projects are performed by development teams, which commonly distribute the work among their members by following well-defined structures of interdependent responsibilities (Benarek, Zuser, & Grechenig, 2005).

Experiences that form the basis of this chapter have been gained mainly while working on eCourses created as a part of a large educational project (Budimac, Ivanović, Putnik, & Bothe, 2011) under the auspices of the "Pact for Stability of South-eastern Europe" and DAAD foundation. Institutions (15 universities) from 9 countries took part in this project, creating several common courses, initially for the most part in a classic face-to-face form. Later on, each participating institution worked further on those courses, extending them and adjusting them to their individual needs.

Our Department developed several eCourses suitable for use in a learning management systems

(LMS), where the most mature are: "Software Engineering," "Introduction to eBusiness," "Object Oriented Programming 1 and 2," "Data Structures and Algorithms 1 and 2," and "Web Design" at the bachelor level; and in addition "Software Testing," "Privacy, Ethics, and Social Responsibility," "Architecture, Design, and Patterns," and "Software Engineering for Critical Systems" at master level. Students taking our elective course on distance learning helped us during the development of the draft versions of some of those courses which we later completed and polished.

As presented in (Ivanović et al., 2009), in the very beginning we decided to use and, if needed, extend one of the existing eLearning platforms for our eCourses instead of developing a new one from scratch, which proved to be a reasonable choice. After consulting a number of comparative studies and research papers (Graf & List, 2005; Di Domenico, Panizzi, Sterbini, & Temperini, 2005; Stewart et al., 2007; Al-Ajlan & Zedan, 2008), and testing several (freely) available systems, we drew a set of conclusions on the offered tools. We inclined towards an open source solution (Ahmed, 2005), so the system we chose was one of the established general purpose LMS systems – Moodle. A platform like that offered flexibility and significant initial cost savings, but also the potential for extensibility and customization according to one's particular needs. That proved to be all rather valuable for an educational institution like ours. Overview of the typical resources and activities that can be implemented and offered to students using standard modules in Moodle is presented in Figure 1.

The facilities we chose initially were those that could be used for creating simple repositories of learning resources recommended to our students. After noticing their satisfaction and further possibilities the platform offered to us for improving our teaching methodology, we decided to move on. According to the trends in eLearning practice, over the years we have progressed through several phases:

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