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University Level Learning and Teaching via E-Learning Platforms

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Abstract

Web-based adaptive collaborative learning environments are more often used to support face to face teaching activities. This paper describes how the educational process may be improved and students may be motivated to do homework tasks and to attend classes in higher education. We describe the implementation and use of e-learning platforms and present our experience in using such platforms in our faculty. The performance of two groups of students is analyzed. The analysis focuses on two aspects: attendance on classes and homework tasks submission. Therefore, the first group had no contact with e-learning environment and they had to attend classes in a traditional way (face-to-face interaction) and to submit their homework via e-mail. The second group had to attend classes and also to use an e-learning platform where they could access course resources and homework tasks. They had also to submit their homework via the platform, while respecting a strict deadline and using the professors' feedback to improve their homework quality. This paper highlights the importance and the benefits of using collaborative e-learning platforms in higher education to support face to face teaching.

1. Introduction and literature review

Technology plays a large role in many aspects of day-to-day life, and its importance for education is no different. Technology is rapidly changing the way students learn and how instructors teach. There are many reasons for the growth of the higher education e-learning industry, both from the institutions' and students' perspectives. Globally, the demand for post-secondary education is increasing. With the limited capacity of existing classrooms at academic institutions and the prohibitive cost of building new facilities, e-learning is an attractive alternative [20]. In an effort to remain competitive and maintain their market share, many traditional

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higher education institutions have expanded their offerings to include e-learning courses to compete with the growing number of virtual higher education institutions [8]. In doing so, they can use their brand names to expand their target market internationally in order to capitalizing on excess demand that exists in the education systems of other countries. In addition, increasing the use of information systems within educational institutions also provides an opportunity for the organizations to reengineer their existing time and paper-intensive processes to improve their overall efficiency. From a student's perspective, the knowledge economy creates a great need for continuous training and upgrading of skills [8]. E-learning makes it possible for this lifelong learning to occur as a part of the student's everyday life, removing the need to travel to a traditional institution or be confined to a specific class schedule.

In the literature, it is often considered that the pedagogical processes have a number of dimensions such as: opportunity for use, quality of knowledge gained, and student's level of acceptance. There have been a variety of studies focusing on the acceptance of e-learning by students [23] discussing the opportunities of using e-learning in pedagogical processes [11] comparing e-learning versus traditional learning on the acquisition and retention of knowledge, e.g., Fernández Alemán et al. [7], and evaluating the quality of knowledge gained by the students through the use of e-learning and the level of student's acceptance of e-learning, e.g., Kelly et al. [9]. As Vavpotič et al. [18] suggested, all the three dimensions must be considered concurrently in order to have an accurate picture on the benefits of e-learning on learning.

In editorial guest of Chen et al. [5] it is presented the work of several scholars that are interested in the field of e-Learning. Among them, Chai et al. [4] reviewed papers that had investigated Information and Communication Technology (ICT) integration using technological pedagogical content knowledge (TPACK), a framework for the design of teacher education programs. They found positive results in enhancing teachers' capacity to integrate ICT for instructional practice.

Paper of Bogdanov et al. [3] is focus on improving the e-learning via personal learning environments through widget spaces in Moodle.

A large number of commercial or open source Learning Management Systems (LMSs) are widely used to assist teaching activities. LMSs are the most representative e-learning applications.

Some are open source software, others are commercially provided. They can be used for distance-learning and as a supplement to in-class lectures, on which course announcements, homework assignments, lecture notes and slides can be posted, for Internet access. These days, we observe a movement in higher education leading from proprietary software to open source, for e-learning applications. In fact, open source software development can provide the necessary flexibility to combine languages, scripts, learning objects and lesson plans, effectively, without the cost and rigidity of proprietary packages of R. Williams [21].

As well described by Psaromiligkos et al. [14], LMSs support a number of features as: Course Management, Class Management, Communication Tools, Student Tools, Content Management, Assessment Tools, and School-Management. Developed by an extremely active open source community, Moodle is a popular Course Management System (CMS) that is ideal for creating dynamic online learning communities and for supplementing face-to-face learning. There are a number of characteristics why we considered Moodle to be a good fit for our requirements. Moreover, it can compete with the big commercial systems in terms of features sets and is easy to extend. Our opinion is that a model best fits the university requirements if it serves to produce benefits and improve the teaching process. Tuparova, D. and Tuparov, G. [17] offer an "approach for management of student participation in collaborative activities and techniques in open source e-learning environment".

The implications in terms of using Moodle in higher education are reflected in previous papers [6], where the authors state that this platform improves teaching and the learning process and they make several considerations in terms of "causal relationships between perceived usefulness, perceived ease of use and actual usage behavior". Mentioned research is based on the Technology Acceptance Model (TAM), as main theory how users come to accept and use a technology. Another study with the theoretical grounding of the TAM was performed earlier by Ong and Lai [12]; TAM is also the basis for the Computer Based Assessment Acceptance Model (CBAAM) that is proposed by Terzis and Economides [16].