Chapter 2
The Moodle Platform:
A Study in a Higher Education Portuguese Institution

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ABSTRACT

This chapter analyzes Learning Management Systems (LMSs) and their main features and compares the most popular LMSs platforms considering their utilization and the services they offer. Additionally, it presents a study carried out at the University of Aveiro (UA) that analyses the functionalities and tools of the Moodle platform and their use by students. The data was collected based on content analysis, one non-structured interview with the responsible of the Moodle from the UA and a questionnaire applied to 278 students. The results show that the most mentioned purposes of the Moodle@UA were 'Download materials', 'News' and 'Deliver assignments' and that the most used information materials are 'Texts' and 'Slides', showing that despite Moodle has a great potential, it is mainly used as a repository of materials. The results also highlighted the existence of two groups of students distinguished by the degree of importance given to the Moodle tools.

INTRODUCTION

Nowadays, Information and Communication Technologies (ICTs) are present in the teaching and learning process involving the activities of data collection, information processing and knowledge creation. Particularly, Learning Management Systems (LMSs) have a lot of potential for supporting the referred process, provided they are used in their fullness.

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The Moodle platform is the LMS most used in higher education (Bremer & Bryant, 2005; Campanella et al., 2008; Costa, 2010; Fernandes, Simões, Santos & Rogado, 2007; Fernandes, 2008; Lms, 2007; Machado & Tao, 2007; Miyazoe, 2008; Tejedor, Muñoz-Repiso & Costa, 2012) and integrates several modules that allow creation, organization, delivery, communication, collaboration and assessment activities.

This chapter analyses the main functionalities and tools available in the Moodle platform and presents the main modules and some extended tools that are offered by the University of Aveiro (UA), Portugal. Additionally, the chapter discusses the results of a study carried out in the Department of Economics, Management and Industrial Engineering (DEGEI) through the application of a questionnaire to 278 students with the objective of characterizing the use they make of the Moodle and of its main tools. The questionnaire consisted of the three sections: (i) characterization of the participants, (ii) characterization of the use of the Moodle' platform in terms of purpose of use and format of information accessed/posted and (iii) characterization of the use of Moodle' tools and quantification of the level of importance assigned to the use of each tool.

The collected data were analyzed using the *IBM SPSS Statistics 19* software. First, a descriptive analysis was performed, in order to characterize the behavior of each variable measured. Afterwards, paired samples *t*-tests were done in order to verify whether there were statistically significant differences between the average importance to each Moodle tools between the groups that use and do not use the tools. Finally, two cluster analyses (one hierarchical and another using *K-means* method) were performed in order to identify and characterize groups of users according to their profile of importance given to Moodle@UA tools and the mean values of the degree of importance assigned by the clusters obtained were compared using t-tests.

This chapter intends to contribute to a systematization of the activities and the respective modules provided by Moodle, as well as to show the results of an exploratory study on the importance in the students' perspective of the Moodle tools use in the teaching/learning process.

This chapter is organized in five sections. The second section reviews the main classification of LMS, and compares different LMSs concerning their utilization and the services they offer. In the third section the Moodle platform is examined, through a brief description of the modules, a systematization of the activities and a brief discussion on the advantages and disadvantages. The fourth section describes the study carried out at the UA, including a description of the tools incorporated in the e-learning platform adopted by the UA - Moodle@UA, and the results obtained in the empirical study. Finally, in the fifth section, some conclusions and future work are presented.

LEARNING MANAGEMENT SYSTEMS

There are different expressions used to describe educational computer applications, such as Learning Management Systems (LMS), e-learning Systems, Course Management Systems (CMS) or even Virtual Learning Environment (VLE). In this work it will be used the expression Learning Management System.

Ekúndayò and Tuluri (2011) define LMS as the application of technology to learning and teaching, allowing the use of various methods to impart information, skills and competences. Additionally, these platforms enable educational institutions to manage their educational resources, to support their distance education, and to supplement their traditional way of teaching (Al-Busaidi & Al-Shihi, 2012). LMS can support e-learning activities such as communication, collaboration, learning and information/knowledge