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Investigating the Use and Acceptance of Technologies by Professors in a Higher Education Institution

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ABSTRACT

This article analyses the use and acceptance of technologies by professors in the teaching and learning context in a higher education institution. In the empirical study, a questionnaire based on the technology acceptance model was applied. The results indicated that the most used technologies are Moodle, Facebook and YouTube and it was concluded that in general, those technologies are well accepted. Few statistically significant differences between respondents' gender, scientific areas or ages were found, revealing that the use of those technologies is already widespread in the studied institution. Results also showed that perceived usefulness and perceived ease of use are two important determinants of Moodle acceptance, and that the majority of respondents did not know the MOOC concept. This article is valuable for researchers in the area and for professors that want to implement the use technologies in the teaching and learning context.

KEYWORDS

Higher education, Learning Management Systems, MOOCs, Technology Acceptance Model, Web 2.0

INTRODUCTION

Many Higher Education Institutions (HEI) have been developing courses using a variety of technologies to deliver distance education programmes, with e-learning being the most popular form (Arkorful, & Abaidoo, 2015; Zimnas, Kleftouris, & Valkanos, 2009). E-learning refers to the use of technologies in order to provide learning solutions where the learning context can be accessed from the web (Zimnas et al., 2009). The technologies that usually support the Teaching and Learning (TL) process in Higher Education Institutions (HEI) can be classified in Learning Management Systems (LMS), Web 2.0 technologies, or Massive Open Online Courses (MOOCs) platforms.

The main objective of this work is to present the results of an empirical study about the use and acceptance of the TL technologies by professors in a Portuguese Higher Education Institution - University of Aveiro (UA).

This paper is organized in five sections. The second section presenting the theoretical background performs an overview of the main technologies used in HE: LMS, Web 2.0 technologies and MOOCs platforms, and reviews the main models of technologies' acceptance. The third section describes the material and methods used in this study. The fourth section presents the results and discussion. Finally, the last section presents the main conclusions of the study and recommendations for further research.

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THEORETICAL BACKGROUND

Technologies Used in Higher Education

Information and Communication Technologies (ICTs) support TL process and are frequently involved in data collection, information processing and knowledge creation activities (Costa, Alvelos, & Teixeira, 2015). Nowadays, Universities adapt TL methods using the ICTs for knowledge transmission.

Students own and use a diversity of technologies, but institutions and instructors have yet to seize opportunities to create more varied learning experiences outside the classroom (Epelboin, 2013).

ICTs in education context have been changing according to the evolution of technology. The society has embraced new forms of communication over time. A typical example is the evolution from the basic correspondence through postal service to the variety of tools in Web (Moore, Dickson-Deane, & Galyen, 2011), where e-mail plays an important role.

Next subsections address the concepts of LMS, Web 2.0, and MOOCs platforms as important representatives of technologies used in education, particularly, in HEIs.

Learning Management Systems

Learning Management Systems (LMS) are technological systems used to create online courses (Paulsen, 2003) and grew from a range of multimedia and internet developments in the 1990s (Coates, James, & Baldwin, 2005). They allow users to register, monitor and evaluate activities and to manage contents, as well as to exchange information among geographically dispersed users. In the educational context, LMS allow the use of various methods to impart information, and develop skills and competences (Ekúndayò & Tuluri, 2011).

LMS support distance education and complement the traditional way of teaching (Costa et al., 2015), through e-learning activities such as communication, collaboration and information/knowledge transfer (Al-Busaidi & Al-Shihi, 2012). By using these systems, students can access courses' contents in different formats (text, image, sound), as well as interact with teachers and/or colleagues, via, for example, message boards, forums, chats, video-conferences (Sanchez & Hueros, 2010). These platforms are closed to authorized users, are teacher-centred and do not rely a lot on students' contribution (Manca & Ranieri, 2016). The LMS can be commercial solutions as Blackboard, or open-source ones, such as Moodle.

The current LMS incorporate Web 2.0 technologies (Holme & Prieto-Rodriguez, 2018). These platforms strengthen traditional academic values of sharing and collaborative creation of knowledge by providing teachers and learners with platforms for collaboration, thus enabling teachers and learners to jointly develop educational content, supporting the exchange of material, and facilitating community building (Ornellas & Carril, 2014). The LMS platforms allow maintaining a repository of information, but also designing an active, participative and collaborative virtual teaching, since they allow communication between all the members of the platform (Garcia et al., 2015).

Web 2.0 Technologies

Web 2.0 is a second generation of Web applications, based on online services, collaboration, communication, and sharing, and reflects different ways of promoting interaction between people (Bennett, Bishop, Dalgarno, Waycott, & Kennedy, 2012). It emerged in October 2004, developed by O'Reilly and MediaLive International (O'Reilly, 2005) and supports social interaction, feedback, conversation and networking, being endowed with a flexibility that enables collaboration. This paradigm redefines the interaction between Internet and users, allowing the creation of virtual applications using data and functionality from a number of different sources (Costa, Teixeira, & Alvelos, 2014). The use of Web 2.0 technologies has significant potential to support and enhance in-class TL in HEI (Ajjan & Hartshorne, 2008; Jimoyiannis, Tsiotakis, Roussinos, & Siorenta, 2013). The Web 2.0 technologies are open to everyone and anybody can use them (Ornellas & Carril, 2014).