B-Learning at Universities in Andalusia (Spain): From Traditional to Student-Centred Learning

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ABSTRACT

In this paper, the authors examine the rates at which blended learning (b-learning) has been adopted at universities in the region of Andalusia (Spain), as well as the educational model applied to its usage. The authors explore the influence of teachers’ perceptions of their competence in the use they make of digital material and to measure institutional support for teachers in this area. The methodology consists of an ad hoc questionnaire designed for a representative sample from four universities and the application of Multiple Correspondence Analysis (MCA) and Structural Equation Modelling (SEM). The results show that the use of Learning Management Systems (LMS) in universities in Andalusia is common but there is little sign of educational innovation, except in a minority of teachers. In addition, it was found that teachers’ perceptions of their technological competence influenced their use of LMS but not the pedagogical model. The university pedagogical model must be reconceptualised, with a shift in traditional university values toward innovation, cooperation, and a shared construction of knowledge.

Keywords: Blended Learning, Higher Education, Information Technology, Innovation, Learning Management Systems (LMS), Technology Adoption, Technology Integration, University

1. INTRODUCTION

The new professional competences required by business and the economy today, such as skills to negotiate meanings and viewpoints, reasoning, problem solving in interdisciplinary teams and lifelong training throughout the professional cycle, make considerable demands on the university education system (Kirschner, 2005; Condie & Livingston, 2007). The literature highlights the importance of the constructivist approach and the awareness of the benefits of cooperative learning in this context (Fisher, 1995; Perkins, 2001; Slavin, 1996).

Learning Management Systems (LMS) allow b-learning development and provide tools to develop the new educational models.

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However, the potential application in higher education remains low. In this work, a study is presented with the aim to analyze the implementation of LMS in four universities in the region of Andalusia together with the analysis of this system’s new and more complete learning processes, different from the traditional education models based on information assimilation.

In the second part of this paper, the literature review and the descriptive models by Rogers (1962/1995) and Zemsky and Massy (2004) are presented in order to describe the level of adoption of b-learning with the support of LMS. Other variables linked to the potential use of technology among teachers are also analyzed.

The hypotheses and derivative objectives are described in the third section. An evaluation has been carried out to consider the validity of the adoption models for the implementation of b-learning in universities and the analysis of direct and indirect influence of internal and external factors concerning teachers on b-learning adoption.

The fourth section focuses on the method. The method used in this study consists of an ad-hoc questionnaire based on variables described on the second section of this paper. This questionnaire was applied to a random sample of 495 teachers during the academic year 2009-2010. There are two different techniques included: Multiple Correspondence Analysis (MCA) and Structural Equation Modeling (SEM). The MCA seeks to validate the Rogers model (1962/1995) applied to the use of b-learning through LMS, identifying clusters depending on the frequency of use, technological competence, pedagogical style and institutional support strategies. The second analysis, the SEM, initially presents a factorial reduction, which implies a validity limit for the drawing of conclusions: Its aim is to approach the confirmation of the effect of teachers’ self perception concerning their technological competence about the educational use style and the potential use of digital resources integrated in the LMS.

The fifth section of this paper is divided into the MCA and the SEM. The MCA presents four clusters similar to the adoption cycles identified by Zemsky and Massy (2004) and in similar proportions to the innovation curve presented by Rogers (1962/1995). These clusters are analyzed and interpreted. Through the Structural Equation Modeling, some results interpreted by the MCA are confirmed. Among these statements: the fact that the self perception of technological competence of university professors has an influence on the frequency of use of digital resources, but does not determine the instructive style. The results also confirm the influence of the support measures on the self perception of professors’ competence.

In the sixth section appear the conclusions. Among these conclusions, confirming the validity of Zemsky and Massy (2004) and Roger’s models (1995) to describe the processes of adoption of b-learning in universities. According to the results obtained in this research, the implementation of b-learning in public universities in the region of Andalusia is in a transitional phase, from the cycle two (with the incorporation of LMS) towards more innovative pedagogical models that are being used by a minority of professors (innovative professors). This minority, thanks to the use of LMS is developing new cooperative and constructive models of b-learning.

2. LITERATURE REVIEW

2.1. E-Learning Models at Universities

E-learning as applied to tertiary education is embodied in three different approaches: the conventional model, the mixed model (blended learning) and the distance learning model (Zhao, 2009; Zhao & Jiang, 2010). Blended learning (b-learning) refers to the integration of virtual and face-to-face teaching using Learning Management Systems (LMS). In this sense, it is possible to develop an increasing number of new ways of integration of virtual and face-to-face education (Garrison & Vaughan, 2008; Mortera-Gutierrez, 2006). For example, class teaching takes the traditional form, while
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