LMS – Evolving from Silos to Structures

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Introduction
Our understanding of the teaching and learning process is continuously evolving. This evolution is always related to context and sometimes is influenced by technological, pedagogical or sociological trends. One of the most common tools used in eLearning is the Learning Management System (LMS); 100% of Universities have at least one LMS and 79.5% of large companies use these systems in their eLearning initiatives (Wexler et al., 2007).

From an institutional perspective, LMS have proven necessary for eLearning by providing a nexus for learning activities and a set of tools that support and permit the management, within a closed environment, of teaching and learning processes. But today there is a need for emerging innovations to be taken into account in the design and use of a LMS. Web 2.0 tools, social networks, and cloud services are increasingly used to improve learning in both formal and informal contexts, but usually outside the institutional LMS. The increasing presence of these tools is something that should be taken into account and incorporated into the concept of the LMS (García-Peñalvo, Conde, Alier & Casany, 2011). Otherwise these tools will increasingly become walled gardens (Mott, 2010), distanced from the kinds of ICT uses and behaviours that are prevalent among learners. There is a need to open up the LMS concept (Conde, García, Casany & Alier, 2010) so that instead of constituting a closed set of predefined tools for management, it becomes an adaptable and flexible framework for supporting the learning process.

Moreover, LMS are usually centred around one specific institution or course, and though they provide very useful tools for teachers, course designers and human resource managers in companies they cater more to these needs than to the needs of the learners. The institutional investment in a LMS, particularly the resources employed to adapt them to the needs of the institution makes it unlikely that they will be discarded. There is therefore a need to address ways in which they can be adapted, so that they evolve to meet the emerging needs of the learners, the key actors in the learning process, and thus ensure their continued educational relevance (and that of the institution).

Learners increasingly use a wide range of tools and resources to learn, and do so in a wide range of contexts. Although this has arguably always been the case, the emergence of a diversity of ICT tools that support learning outside formal contexts has made these processes more salient. This implies that, if they are to meet the needs of the learner, in an increasingly competitive context, LMS need to be restructured to make them capable of adapting to, and at times incorporating, new tools and purposes. They should be capable of supporting learners beyond the institutional context, throughout life, and guarantee the learner´s mobility between contexts, while at the same time continuing to meet an institution´s needs. This implies that first it is necessary to look at how students use institutionally provided LMS and how this use relates to their use of other tools, in other words how the institutional LMS fits into or interacts with their existing wider Personal Learning Environment (PLE), and then how the LMS might enrich or support this PLE across courses and institutions and over time (Conde, García-Peñalvo, Piguillem, Casany & Alier, 2012).

The challenge with respect to this necessary modification requires a pedagogical shift. The name Learning Management System suggests, or even assumes, that the institution "manages" the students learning. However the idea of supporting learning across contexts implies that the responsibility for learning devolves to the student. Regarding this, there are two important issues to explore: 1) Are learners ready for this responsibility?, and 2) Can LMS help learners to organise their existing PLE in ways that will meet their educational needs (and enrich their learning) in a lifelong learning context? To do this, it will be necessary to explore student behaviour, the kind of tools they use in and outside the institution, how they collaborate with other students during the course or with other students in the same institution and so on.

In order to achieve these goals, LMS must be reconceived as repositories for learning services and resources, that are capable of coexisting with and within, rather than aiming to replace (as is frequently the case), the learner's PLE - throughout life and across contexts.

The aim of this special issue is to explore this challenge and provide an overview of existing approaches that enable more flexible and open "Learning Management Structures". Contributions will include, among others, work related to service oriented solutions; communication between LMS and external tools; interoperability initiatives to guarantee solution portability; personalization, and also new hybrid contexts for learning.

Contributions

In the opening article of this special issue Mark Johnson introduces an interesting dimension and perspective in the scope of this special issue, perhaps more philosophical and theoretical, but with a practical application. He reinspects the PLE cybernetic model presented by Johnson and Liber (2008) in the light of evidence from implementation and changes in technology infrastructure. Johnson proposes a refined model, enriching the cybernetic argument about the control of personal tools with Bowlby's related cybernetic model of attachment (Bowlby, 1958). The Johnson's refined model is situated against the impact of the fast-emerging real-time web, and he justifies the approach with reference to a computer simulation of the dynamics of the new model.

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The second paper is entitled "An Enhanced Personal Learning Environment using Social Semantic Web Technologies", by Khaled Halimi. It is devoted to develop an approach of personalization according to students' preferences, interests and knowledge by defining for them the best learning paths, this means, provide them as recommendations the best collaborators and the relevant resources that better fit their needs. The author also introduces a new recommendation method based on users' similarity calculation.

Next contribution is entitled "An evolving Learning Management System for new educational environments using 2.0 tools" by Conde et al. In this paper explores the integration of Web 2.0 tools in traditional learning environments, the various possibilities and their advantages and drawbacks. To do that, an interoperability scenario is described and two experiences are presented to show how these tools can be integrated in learning activities, and its effect in educational process.

Salinas and de Benito contribution is entitled "Research results of two Personal Learning Environments experiences in an institution of higher education". Authors argue that LMS have limitations and they wonder if iPLE could be an interesting option. They demonstrate their proposal through two different approaches in Spanish universities, which are student-centered as the main contribution.

The last paper in this special issue is entitled "Providing knowledge recommendations: an approach for informal electronic mentoring", by Colomo-Palacios et al. In this work authors introduce IM-TAG, a Web 2.0 tool, based on semantic technologies, for informal mentoring. The tool offers recommendations of mentoring contents built upon personal competencies of the mentee, combined with content and opinion tagging. To validate the tool, a case study comparing recommendations from the IM-TAG and a group of experts has been conducted.

In conclusion, guest editors would like to take this opportunity to thank authors who have contributed to this special issue. We would also like to acknowledge the help provided by the reviewers. We also want to thank Joseph Psotka and Sue L. Greener, Editors-in-Chief of Interactive Learning Environments, for their endless support during the editorial process.

The set of papers in this issue show the importance of the different ways in which LMS are evolving to open learning environments. Guest editors hope that readers find the papers of this volume useful and innovative.

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