Do Open Source LMSs Support Personalization? 
A Comparative Evaluation

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Abstract. A number of parameters that support the LMSs capabilities towards content personalization are presented and substantiated. These parameters constitute critical criteria for an exhaustive investigation of the personalization capabilities of the most popular open source LMSs. Results are comparatively shown and commented upon, thus highlighting a course of conduct for the implementation of new personalization methodologies for these LMSs, aligned at their existing infrastructure, to maintain support of the numerous educational institutions entrusting major part of their curricula to them. Meanwhile, new capabilities arise as drawn from a more efficient description of the existing resources –especially when organized into widely available repositories– that lead to qualitatively advanced learner-oriented courses which would ideally meet the challenge of combining personification of demand and personalization of thematic content at once.

Keywords: open source LMSs evaluation, personalization, adaptation.

1 Are Open Source LMSs Properly Designed towards Personalization?

The plethora of current Learning Management Systems (LMSs) and Learning Resources¹ (LRs per se) constitutes the very evidence that establishing life long learning is the necessary step in improving the trainees’ skills and ease, their trainers’ appeal and straightforwardness, and both parties’ professional competitiveness in synchronous working environments. Thus the LMSs are rapidly evolving to comprehensively encompass a number of features and capabilities in order to further fulfill these needs. For example, they provide a variety of LR types (docs, html, ppt, etc); they offer the means to change the learner’s interface; they supply with a number of helpful utilities such as calendars, to-do lists, forums, etc. In most instances, such features are the direct product of observations-on-demand, and it may be that their being scattered – to say the least in terms of the form they are usually presented – may be due to this ad hoc nature of their production and distribution. Despite the existing functionalities, it

¹ LR is every digital entity, usually called “learning resource” that can be used for learning, education, or training.

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appears that e-users in the realm of educational exchanges, i.e., e-tutors and e-Learners, are still keen in search for organized patterns for accessing knowledge. Judging from certain results on monitoring e-Learners’, e.g., academic progress, their search is not just attributable to mere technological ‘greed’: it seems there is still a lot to cover until LMSs noteworthy growth satisfy both, e-learners’ and their tutors’ demands on novelties in LRs creation and the formers’ objective academic advancement. In this respect, it could be noticed that one of the weaknesses of the existing resources might be their lack of connection to pedagogical theories [1], especially constructivism that would integrate electronically proper features into pedagogically correct interoperability. On the other hand, an increasing body of the literature [2] tends to lately acknowledge that e-Learners do differ in skills, aptitudes, preferences, discernment of information and perhaps particular capacities and needs due to special (dis)abilities they may have [3]. In these respects, the qualitative content of an LR does not automatically or necessarily lead to a satisfactory educational result, unless notions from adaptation theory [4] are seriously taken into consideration. This specifically indicates the need to incorporate sophisticated psychological methods in the quest of adequately improving personalization of knowledge and at the same time personification of demand. Thus, any new practices that have to be built in the LMSs and which must also be supported by their storage mechanisms should ideally satisfy such requisites as well. New provisions presuppose that the system offers adaptation/personalization methods, which, despite the fact that their theories have already been widely applied in LMSs, are still to be refined. The latter are by definition web-based adaptive systems focused on learning: generally, an adaptive system –in contrast to static systems– is a physical system capable of self-adapting in response to changing environments. An adaptive system is to be equipped in such a way that it can modify itself into different system-states in order to navigate, function and succeed while shifting its performance among different users. As seen in [4], these systems should have a user model, and also be able to adjust their environment and content using this model, so as for the same system to behave differently in direct correspondence to different individual e-users’ demands. Adaptation has so far been achieved through i) adaptive navigation support, and ii) adaptive presentation of the required educational material. Pertinent parameters are mainly: user’s goal or user’s task, user’s background, and user’s preferences. To these, one more category ought to be added, namely, the provision of personalized content, user-specified and interoperable with the aforementioned criteria for fulfillment. To implement these methods the characteristics of the learner and the features of the learning object should be known. In addition, there should be a function that combines them. Taken together, such requirements compel to re-think issues about systems adaptation. Apparently, these methods greatly depend on suitable descriptions that reflect the LRs/learners properties/abilities. Surely, some of the LR descriptions such as format, language, author, etc, may be visible at once. Some others, though, such as semantic density, different approach of the learning process, e.g. holistic-vs-serial, etc. [3, 6, 7], which are

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2 Here, adaptation refers to available navigational support and interface modification. The term personalization refers to the capability of the LMS to provide different content suitable to different individual learners. Customization is the simplest form of adaptation, and it refers to the ability of the users to modify the page layout or specify which links in a page should be displayed as well as how the content should be displayed.