How to use IMS-LD to support eLearning in an effective way (Invited Talk)

Daniel Burgos
International University of La Rioja
Gran Vía Rey Juan Carlos I, 41
Logroño 26002, Spain
www.unir.net
daniel.burgos@unir.net

eLearning systems look into specifications to ensure some level of homogeneity in specific issues. Well-known Learning Management Systems (LMSs) develop useful functionalities adapted to teachers and learners mainly. These all-in-one platforms try to provide a comprehensive user experience, supported by a toolbox from synchronous to asynchronous communication channels and software applications, from activities to adaptive units of learning, from learning objects to blogs. In addition, all these LMSs require interoperability and interconnection, if they do not want to evolve to an out-of-the-grid solution. Specifications come to ensure this interrelation and some of these features, like adaptation. In this context, eLearning specifications provide common parameters to exchange learning packages and learning plans, and to improve the user experience, adapted to every case. IMS Learning Design (IMS-LD) seems to be the most promising eLearning specification, since in addition to organize resources, it models personalised learning itineraries to use them along with a methodology. However, IMS Learning Design requires substantial modifications to improve key features. On the other side, IMS-LD is able to model complex scenarios like, i.e. adaptation and interoperability.

Out of the three levels of implementation of IMS-LD, Level A of IMS-LD provides the basic skeleton and a general framework to work with Units of Learning. It makes the 80% of the whole structure. Level C, and above all Level B provide both the spec with stronger and more versatile resources. These two upper levels are the actual responsible means to model some of the current learning and teaching challenges (i.e., active learning, collaborative learning, adaptive learning, runtime tracking).

Based on a literature study, a distinction is drawn between eight types of Adaptation that can be classified in two clusters: a) the main group, with interfaced-base, learning-flow and content-base; b) interactive problem solving support, adaptive information filtering, adaptive user grouping, adaptive evaluation, and changes on-the-fly. Out of this research and modelling efforts we derived a number of findings focused on the limitations that IMS-LD provides. These findings are mainly focused on adaptive learning process. However, since this topic cannot be isolated from the overall approach of the specifications, some of the limitations, and further recommendations, also address other topics, like interoperability, or even authoring tools. Indeed, we conclude that specific recommendations should be categorized in three groups: a) Modelling, b) Architecture, and c) Authoring. Furthermore:

a) With regards to general modelling, and modelling focused on adaptive learning we conclude that IMS-LD shows a metaphor difficult to understand. It is not as much to say that people do not understand what a theatre is or how a play is performed. The key issue comes when a teacher needs to translate this well-know structure into specific pedagogical resources and features. This translation process turns not to be so obvious. The conceptual model is clear: play, acts, roles, role-parts, and so on. But all of them, interlaced in a whole structure of learning, become complex. Even the simplest scenario requires some knowledge of the specification in a technical way. And this is far from being user-friendly, moreover when the usual target people consists of non-technical profiles

b) Full communication of information packages, sharing variables and states. This third solution becomes the most effective one. It implies the development of a communication layer that deals with effective bi-directional exchange of data between information packages. This solution allows for the communication and sharing of services, along with variables, values and states, between IMS-LD and any outside counterpart (i.e. Java, Flash, PHP, SCORM, et cetera)

c) There is a need for high-level visual authoring tools. Nowadays there are two types of tools: effective but too technical, even for technical profiles; and simple to understand but not powerful, since they usually deal with the very basic Level A. The creation of UoLs should be as far as possible from technical requirements or the underlying elements, components or structure. A more visual approach would encourage the understanding and use of IMS-LD in a broader sense by target groups. Technical low-level editors should live along with the visual high-level ones, though

In short, IMS-LD can support pedagogically expressive eLearning scenarios, however some modifications and extensions could improve the overall impact and performance of this specification in real implementations.