

Lessons from LAMS for IMS Learning Design

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Abstract

LAMS (the Learning Activity Management System) is a Learning Design system with a particular focus on sequencing of collaborative learning activities. This paper reviews a number of lessons learned from the development of LAMS, and their implications for both the existing IMS Learning Design specification, and its future scope and purpose. It proposes a number of areas for further development.

1. Introduction

LAMS (the Learning Activity Management System) is an integrated system for authoring, running and monitoring Learning Designs [1] [2]. Since 2003, it has been used in trials with schools and universities [3] [4] and was released as open source software in early 2005 [5].

The LAMS software is complemented by the LAMS Community, a website for LAMS users to discuss the use of LAMS and share LAMS “sequences” (Learning Designs) through a repository [6].

Based on the lessons learned from developing the first generation of LAMS (V1.0.X), a new generation of LAMS (previously called LAMS V1.1, now renamed to LAMS V2.0) was made available as an “alpha” release in April 2006, with beta and production releases expected in later 2006 [7]. LAMS V2.0 contains a new architecture based on a “tools contract” [8].

This paper briefly reviews lessons from the development of LAMS for the IMS Learning Design (LD) specification. It begins with initial reflections from the first generation of LAMS, followed by some additional comments arising from the second generation. These comments should not be seen as a comprehensive analysis of problems with IMS LD, but rather as a set of salient observations from the perspective of LAMS development.

2. Early LAMS development and IMS LD

The early development of LAMS was based on the general concepts of EML (Educational Modeling Language) and IMS LD, but with a particular focus on developing a range of activity tools (especially collaborative activity tools).

The development also planned to follow the IMS LD specification where possible, but acknowledged from the outset that this may be problematic, due to the nature of the specification in relation to the focus of LAMS development on sequencing of collaborative activity tools and because the development of LAMS (July 2002 to February 2003) coincided with the finalizing of the IMS LD specification.

Where it was not possible to align the goals of LAMS development with the IMS LD specification, the project chose to diverge from IMS LD, leading to the concept that LAMS was “inspired” by IMS LD, but not a reference implementation of the specification [1] [9].

3. Problems with IMS LD from LAMS V1

A functioning version of LAMS was presented at the Valkenburg group meeting in February 2003, based on the “What is Greatness?” (long version) use case [2]. At this presentation, a number of challenges for IMS LD arising from LAMS development were noted, these were:

- “(1) Need more tools (services), and descriptions of tools (and potentially tool instantiation/setup XML descriptions);
- (2) Need ways for one tool to pass information to another tool (with possible processing of information in between tools);
- (3) Need a user grouping concept, not just a role concept;
- (4) Need an ability to pass roles/groups and tool information across Acts;

- (5) More detailed concepts of sequencing within "Acts", including within-Act multi-learner synchronisation, and Simple Sequencing
- (6) More development of how a teacher monitors and approves actions in real-time during a complex, multi-task (including dependencies) activity sequence." [10]

In the Valkenburg meeting, and in subsequent discussions of the lessons from LAMS for IMS LD, it appeared to the author that this feedback was not particularly welcome. This issue also appeared to the author to be a factor in the rejection of a proposed chapter on LAMS for the Koper and Tattersall "Learning Design" book.

In a subsequent paper on LAMS [2], more detailed discussion of "Learning Design aware" activity tools was presented, including the nature of integration between activity tools and a "controller" system. An argument for rich integration was presented, based on the importance of a seamless authoring and run-time experience for users. This argument has significant implications for IMS LD given its limited information about how different LD activity tools communicate with a LD run-time system.

4. LAMS V2.0 and the "Tools Contract"

The concept of an interface or API between a Learning Design controller and a suite of activity tools, as outlined in [2], formed the foundations for a complete redevelopment of LAMS (V2.0) [7].

This redevelopment is based on a detailed "tools contract" that specifies the requirements for all activity tools that integrate with the LAMS V2.0 "controller". It covers interfaces with the authoring, monitoring, learner and administration environments of LAMS, including technical details for tool deployment.

While this tools contract will require significant refinement over time as new lessons are learned about this approach to building a Learning Design system, it provides a starting point for discussion of a generalized tool integration architecture for Learning Design, and hence may be important for future work on IMS LD.

Beyond the requirements of a generalized LD tools contract, there may be value in descriptions of unique features for each type of activity tool, such as Discussion Forums, Chat, Peer Assessment, etc. This is analogous to existing work on quizzes (using IMS QTI), but applied to all activity tools.

For example, a Discussion Forum tool specification might identify: the title of the discussion; any instructions to students; and one or more starting threads for discussion. It could also specify Forum functionality such as whether the Forum displays posts in a "flat" or "threaded" presentation; whether posts are present in date order or topic order; and whether students are able to continue to post to the Forum (or view only) after they finish this task. This proposed work would be of value to both LMSs and LD systems.

5. References

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