

# Modeling a team-based astronomy task using LAMS

James Roland Dalziel  
Macquarie University, Sydney, Australia  
james@melcoe.mq.edu.au

## Abstract

*This presentation discusses modeling of a team-based astronomy task for school students using LAMS (the Learning Activity Management System) including consideration of modeling and run-time issues, and facilities for observation, traces and adaptation.*

## 1. Introduction

LAMS (the Learning Activity Management System) is an integrated system for authoring, running and monitoring Learning Designs [1] [2] that is available as open source software [3]. Complementing the LAMS software is the LAMS Community, a website for LAMS users where they can discuss their use of LAMS and share LAMS “sequences” (Learning Designs) [4].

This paper discusses the experience of using LAMS to model and run a team-based astronomy task (or “sequence”) for school students. The modeling is based on the current version of LAMS (V1.0.2), but also includes comments on the benefits of features from the upcoming new version of LAMS (V2.0). The paper discusses the issues of teacher observation at run-time, student “traces” (ie, records of activity) and potential changes to the sequence to illustrate re-use/adaptation.

## 2. A Team-based Astronomy sequence

The sequence to be modeled involves a game where students work in two teams to determine the names and order of planets from the sun. One team can determine the order of planets together with some other properties from an expert interview. The second team can determine the names of the planets together with some other properties from a different expert interview. The teams then need to interact to share information to determine the combined names and order of planets. Each student finishes the sequence by completing a questionnaire/quiz to test his/her

knowledge of the combined names and order for the planets.

It is recommended that the Learning Design system provide access to the two expert interviews (one for each group), two chat rooms (one for each group), a discussion forum (for all students, and in which the teacher can participate) and a questionnaire/quiz for the final task (all students, completed individually).

## 3. Modeling/running the task with LAMS

On initial review, LAMS appears able to model and run this sequence. The teacher opens LAMS Authoring to create a linear sequence using, in order:

(a) the “Grouping” tool – set to divide students randomly into two groups;

(b) a pair of “Share Resources” tools named according to the groups, and incorporating the relevant expert interviews. The two tools would be combined within an “Optional activities” box, including instructions for each relevant group to view only their group’s resources.

(c) a pair of “Chat” tools named according to the groups, and combined within an “Optional activities” box as for (b) – the chat is for within-group discussion.

(d) a “Forum” tool available to all students, including some prompt questions to encourage discussion between the groups. The teacher should also be able to participate in the discussion at run-time.

(e) a questionnaire/quiz in which each student tries to identify the planet name/order, and then receives a score and feedback on his/her answers.

Once the sequence above has been authored in LAMS, it can be “run” by assigning a class to it through the Monitoring environment, and then provided each student with a name and password to access the Learner environment to complete the sequence. To assign the class, the teacher (or a systems administrator) needs to have first set up a class group containing the relevant students and the teacher.

To author and run this LAMS sequence with a class would take approximately 15 minutes.

## 4. Issues with LAMS

While the task can be modeled and run as described above, a number of issues are worth considering (these issues relate to V1.0.2). First, LAMS provides only random allocation of student to groups (not teacher specified groups). Second, while LAMS can provide text instructions about which resource and chat room are to be used by which group, it does not enforce this – students are able to enter the other group’s resource/chat (however, a record of this action is kept and is viewable by the teacher). Third, for the teacher to be able to participate in the forum the teacher must be included as a “student” within the class group – there is no automatic facility for a teacher to participate in any task in a sequence that they are monitoring. While this is not an issue for the current sequence, it could pose a problem if it was desirable for the teacher to be able to participate in both group chat sessions.

A solution to the issues identified above is to run the task as three separate (but related) sequences. Sequences one and two would contain the expert interview and chat session for each group respectively; while sequence three would contain the forum and questionnaire/quiz for all students. The teacher would then create three different “classes” containing the relevant students, and apply these as appropriate to the sequences. This approach solves all the issues identified above, but results in more than one sequence.

In LAMS V2.0, all of the above issues are solved without needing to create separate sequences [5]. V2 allows teachers to specify group membership (not just random allocation), it allows tasks to be limited only to certain groups, and it allows a teacher to participate in any activity regardless of whether they are a “student” in the relevant class assigned to the sequence.

## 5. Observation, traces and adaptation

The LAMS Monitoring environment allows teachers to observe both whole class and individual student progress in real time. Whole class observation is provided through a visual representation of the sequence (based on the authoring layout) combined with “dots” representing the location of all students at any given moment. Individual student observation is provided via a linear display of each student’s progress, with colours indicating completed tasks (blue), current position (red) and uncompleted tasks (green).

Integrated with the observation features of the Monitoring environment is the ability to see student

“traces” (ie, records of activity). The teacher can click on any activity for any student to view the student’s contribution to the activity (together with any relevant contributions from other students). In cases where students are permitted to respond anonymously to their peers, the teacher can view a non-anonymous record. Students can see a record of their past activities via the progress bar in the Learner environment.

Finally, the LAMS Authoring environment provides the potential for adaptation of the task described here. New activities can be easily added, such as additional resources to be provided after the forum, or different team-based tasks based on alternative student groups. The sequence could also be adapted for a different topic, for example, the topic could be changed to a debate about whether Pluto should really be designated as a planet; each group could view expert interviews either for or against this idea and debate the arguments within their group; then all students would be invited to debate the pros and cons of this idea in the forum. Finally, students could be given a voting task (rather than a quiz) to select their personal view of the question based on the evidence and discussion. Assuming the teacher already had the relevant content resources needed for this Pluto example, it would take about five minutes to modify the original sequence.

## 6. References

- [1] Dalziel, J. R. (2003). Implementing Learning Design: The Learning Activity Management System (LAMS). G.Crisp, D.Thiele, I.Scholten, S.Barker and J.Baron (Eds), Interact, Integrate, Impact: Proceedings of the 20th Annual Conference of the Australasian Society for Computers in Learning in Tertiary Education. Adelaide, 7-10 December 2003. <http://www.lamsfoundation.org/CD/html/resources/whitepapers/ASCILITE2003%20Dalzie%20Final.pdf>
- [2] Dalziel, J. R. (2005a). From Re-usable e-Learning Content to Re-usable Learning Designs: Lessons from LAMS. Proceedings of the EDUCAUSE Australasia Conference, 2005, Auckland, New Zealand. <http://www.lamsfoundation.org/CD/html/resources/whitepapers/Dalziel.LAMS.doc>
- [3] LAMS (2005). Innovative e-learning system to be launched as open source software this week. <http://www.lamsfoundation.org/news/index.html#4>
- [4] Dalziel, J. R. (2005b). Sharing Learning Designs: Building the LAMS Community website. Presentation for EDUCAUSE 2005, Orlando, Florida. [http://lamscommunity.org/dotlrn/clubs/educationalcommunity/lamsresearchdevelopment/forums/attach/go-to-attachment?object\\_id=58111&attachment\\_id=58113](http://lamscommunity.org/dotlrn/clubs/educationalcommunity/lamsresearchdevelopment/forums/attach/go-to-attachment?object_id=58111&attachment_id=58113)
- [5] LAMS (2006). Learning Activity Management System 2.0. <http://wiki.lamsfoundation.org/display/lams/Home>