

What is a Learning Activity, that an App May Know It?

Avron Barr

In a recent white paper, [Notes on Architecture and LETSI's AWG](#), I suggested that our work on a new elearning infrastructure should imagine future learning activities and management applications that:

- Offer immersive, mobile, and collaborative learning activities for individuals and teams (both commercial and free; available on popular devices; communicate data back to any LMS).
- Use artificial intelligence and extensive student models to help students learn and give useful feedback to teachers – not just a grade.
- Help teachers and learners find, preview, buy, customize, “store,” and organize online learning activities.
- Help teachers and private tutors manage student rosters, lesson plans, grade books, and administrative reports.
- Help teachers assign activities to a learner or a team, and get notified in real time of their status, and observe and coach learners online, from an iPhone.
- Help teachers, and SME's create and share online learning activities.
- Give learners explicit control of who gets to see their historical data and learner profiles: employers, educational institutions, teachers, private tutors, online learning activities, ...
- Allow teachers, parents, learners, and administrators to post evaluations and recommendations about all of these products and services.

This new functionality might manifest as a new features in an enterprise Learning Management System; as new offerings on publisher's websites; or as a mobile iPad apps. Our evolving architectural ideas should view the architecture in terms of what applications will be out there and what services they can expect from one another or, in other words, what data they will want to exchange.

For example, an LMS (or some future iphone app), might want to launch a remotely-hosted learning activity for a single learner, let the instructor know the student has started, and ask the Activity to return completion and performance data in a certain standard format. We might imagine a set of services defined for each class of application.

Specifically, a learning activity, whether it's a ZIP file imported into the LMS, or a publisher's website, or a standalone iPad app, might need to offer the following services:

- Answer inquiries about what player (SCORM, AICC, CC), other software, initialization data, time period (duration), and additional resources are required before launching the activity.



- Launch Activity for identified learner with specified entitlement, initial conditions, accessibility requirements, and instructions for reporting back status and performance.
- Answer status inquiry from LMS or other app about a learner's active session, or even about the session.
- Additional services might be defined to allow other types of interactions with the learning activity. Teachers, for example, might have apps that:
 - Present (or upload to a management app), a searchable catalog available/appropriate
 - Shop (search) for relevant activities, show/preview, purchase, ...
 - Put together a lesson plan incorporating and scheduling multiple activities
 - Customize an Activity for individual students, a whole class, or all of her students.
 - Monitor students during the Activity and even allow a teacher to offer assistance.
 - Review student-created artifacts
 - Download a package that will run in user's environment
 - Incorporate component Activities into new Activities.

Meanwhile the LMS or other management apps would offer the following web services to learning activities:

- Answer inquiry (e.g. from the Activity) about student history, background, preferences, learning objectives, entitlements.
- Receive student status and performance data from Activity
- Receive error information from the Activity

One might imagine new kinds of apps too, that offer services to learning Activities:

- Teacher's management app that receives realtime notifications about each learner's activity
- Nameset app stores the state of a session or other data for persistent storage and sharing with other apps.
- Student center app for an OpenID account. Consolidated digital identity, records. Control access by institutions, teachers, parents, learning activities, and other apps.
- Amazon-type aggregators of elearning products and services with a facility for evaluating and recommending learning activities and management apps in a way that makes sense for a specific community of practice.

Of all of these apps and services, the only place that the internal structure of the learning activity needs to be exposed is reuse – incorporating components of one activity into another. In other words, every publisher could develop their own internal course structure and control language, even allowing teachers to mix and match activities from their website to create their lesson plan, without having to conform to a standard aggregation or control scheme. Reuse is the hard case.

