Advancing Distributed Learning

From a vision with technical concepts to a set of finished products, ADL has spawned an array of partnerships involving thousands of people and hundreds of organizations.

By Dr. Robert A. Wisher and Dr. Michael E. Freeman

The Advanced Distributed Learning (ADL) Initiative celebrates its eighth anniversary in November 2005, growing from a kick-off meeting sponsored by the president's Office of Science and Technology Policy. Since this ambitious beginning, ADL has evolved from a hopeful vision to finished products with an array of partnerships involving thousands of people and hundreds of organizations worldwide. From technical concept to working code, ADL has championed the notion that learning content can be registered, discovered and cleverly reused or repurposed.

ADL seeks to unify and scale the way technology is employed for education, training and performance support. Before 1999, a variety of specifications and standards were being promoted within the burgeoning e-learning industry. These efforts lacked a common framework, so ADL developed the Sharable Content Object Reference Model (SCORM), as directed by an executive order.

The model integrates and connects the work of several organizations into a common, global framework for distributed learning content, tools and services. Content can now be played on multiple delivery platforms over the Internet, rather than on a single vendor's learning management system. ADL continues to fine-tune SCORM 2004 while exploring other open models for added functionality. *[See article on SCORM.]*

ADL and Training Transformation

The DoD Training Transformation implementation plan program identified ADL as a key enabler. In response, ADL holds a vital partnership with the Joint Knowledge Development and Distribution Cwapability within the joint community. As Training Transformation progresses, ADL is once more at the forefront, seeking new technologies for enhancing human performance. For example, ADL is exploring links between SCORM and other object-based environments, such as High Level Architecture for simulations. It is doing so in concert with the Defense Modeling and Simulation Office and the S1000D specification for technical publications, in a cross-cutting effort with the Office of the Deputy Undersecretary of Defense for Logistics and Material Readiness.

Content Objects

The SCORM framework specifies how to develop and deploy learning content objects to suit the needs of the learner. It further provides the means to tag or mark content for later discovery and access in a distributed learning environment. But SCORM is silent about how content discovery and access are to be implemented. Currently, discovering and accessing content for use, reuse or remix is ad hoc, idiosyncratic or proprietary.

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ADL is developing an open, standards-based reference model that describes how to build and implement interoperable federations of learning content repositories. The Content Object Repository Discovery and Registration/Resolution Architecture (CORDRA) is designed to provide a single point of discovery and access for content objects. CORDRA aims to identify—not develop—appropriate technologies, interoperability standards and emerging specifications that interconnect the worlds of content repositories and digital libraries through common services and interfaces.

ADL activities focus on the development of a CORDRA model across a federation of repositories, each managed separately by defense components. Repositories contain sets of content objects. Metadata for each object describe it in a structured, consistent manner. CORDRA is not a repository of content, nor does it dictate how a repository must operate. Rather, it provides a searchable index of the metadata corresponding to each individual (and aggregations of) content objects residing in the distributed repositories. CORDRA assigns a unique and persistent identifier, called a handle, to each object as a means of resolving or finding it.

ADL Registry

ADL is funding the development and deployment of an instance of CORDRA in partnership with the Defense Technical Information Center as a defense-wide capability. Called the ADL Registry, it provides the unifying infrastructure for registering and discovering learning content objects. Both content objects and repositories will be centrally registered. Naturally, the content objects will be SCORM-conformant.

The CORDRA activities are being coordinated by ADL in partnership with the Corporation for National Research Initiatives and the Learning Systems Architecture Lab at Carnegie Mellon University.

How ADL Works

The method of operation in ADL relies on partnerships, such as the CORDRA partnership. ADL has instituted a network of collaboration laboratories, or co-labs, each of which forms partnerships extending to specific communities. The Alexandria ADL Co-Lab in Alexandria, VA, serves as the hub for the network.

Due to its proximity to the Pentagon and Washington, DC, the co-lab hosts many visitors from DoD and the federal government for a firsthand experience of ADL. Among its many activities is hosting the monthly meeting of the Total Force ADL Action Team, which has been exchanging information and providing advice to the ADL effort from its inception in 1997.

In Orlando, FL, the Joint ADL Co-Lab focuses on reaching out to the military services and other DoD components on ADL matters. *[See article on the Joint ADL Co-Lab.]* In Madison, WI, the Academic ADL Co-Lab works with academia, through more than 70 partnerships with universities, offering workshops, consulting and consensus building within higher education.

The newest member to the network, the Workforce ADL Co-Lab, in Memphis, TN, performs research in ADL as it relates to training in the overall workforce. ADL Partnership Labs in the United Kingdom and Canada are the first outside the United States—others are in negotiation. The ADL Technology Center in Johnstown, PA, where the working code is created and maintained, rounds out the primary ADL sites.

Another method of operation is the ADL Plugfest. Here, vendors developing SCORM-conformant systems, tools and content assemble for several days to test the interoperability of their wares. It is a no-fault atmosphere with a spirit of partnership inside the "Plug n Play" area. The ninth Plugfest was recently hosted by the National Institute of Standards and Technology. The second international Plugfest will be in Taipei, Taiwan, in January 2006.

Finally, Implementation Fests are held annually in coordination with the National Training Systems Association. The goal here is to assist the end users in the military services that must make ADL work in order to train the warfighter anytime and anywhere. From technical concepts to working code to end users, ADL supports the spectrum to provide high quality training, education and performance support. ★

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