CORDRA, Games, and Manuals

ADL is growing and tackling new challenges.

Chuck Weirauch reports on the current status of the ADL Initiative.

Begun in 1999, and administered by the US Office of the Secretary of Defense, the Advanced Distributed Learning (ADL) Initiative has grown. Starting with a national focus on the US military, it has grown from its roots in Alexandria, Virginia to have an international and now truly global influence on enabling improved learning methodologies not only for the military anytime, anywhere, but for industry, educational institutions and other governmental agencies as well.

Since the establishment of the initial ADL Co-Lab at the Institute for Defense Analyses (IDA), three additional ADL Co-Labs (Academic, Joint and Workforce), two ADL Partnership Labs (U.K. and Canada) and two ADL Centers (ADL Technology Center and the ADL Job Performance Technology Center) have been created to form the current ADL Co-Lab Network.

With further upcoming international expansion of the ADL network, the organization is truly becoming global in nature. According to Freeman, the ADL Initiative is in the process of finalizing an agreement with the Department of Education Science and Training of the Commonwealth of Australia for a Partnership Lab in that country. Other international organizations have been just recently nominated as sponsors for ADL Partnership.

Screenshot: America's Army

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They include the Korean Institute for Electronic Commerce through the Ministry of Commerce and the Instituto Latinoamericano de la Comunicacion Educativa, a consortium of 13 Latin American countries based in Mexico.

Much research and development remains to be done, particularly into ways to enhance reuse. Once elements of courseware are developed, the trick still remains as how to effectively share these modules and simulations with educators and instructors so that they can find them. And, of course, managing and delivering simulations remains a challenge. Another key research direction is the integration of technical manuals, simulation and training content.

Above
ADL Initiative Deputy Director Dr Michael Freeman.
Image credit: US ADL Initiative

CORDRA

The reuse of content is critical to the success of the ADL effort, since the development of online courseware has become expensive, prohibitively so in some cases. Reuse can justify this expense and make the ADL effort cost-effective. At the present time, various commands, organizations and institutions around the world have established repositories for content for their own use. The problems are that in order to achieve cost effectiveness, other users must first know the content exists, and then be able to access and retrieve it for reuse.

Having first established the Sharable Content Object Reference Model (SCORM) to establish a standard for e-learning content to provide interoperability with learning management systems (LMSs), the ADL Initiative and its partners have now begun the establishment of a means to solve the problems of finding and reusing e-learning content. The means is a reference model, the Content Object Repository Discovery and Registration/Resolution Architecture (CORDRA) model. It is considered to be the next step in the evolution of e-learning. Joining the governmental ADL organization in this effort are the Corporation for National Research Initiatives (CNRI), a non-profit corporation, and the academic Learning Systems Architecture Lab (LSAL).

The CORDRA concept is important to the ADL Initiative organization and its partners, since at the present time there is no method to search and retrieve all stored Department of Defense (DoD) e-learning content. When the ADL effort first began, it was thought that all such content could be stored in and obtained from a central area in what ADL Initiative Deputy Director Dr. Michael Freeman joshingly refers to as "that Big Repository in the Sky."

Since the sheer amount of content the Department of Defense requires to meet its training needs alone would overtax such a central online storehouse, the ADL leadership has moved on to promote CORDRA as a next-generation tool to establish a system to link widespread content storehouses or repositories. Then users could locate and retrieve content in a manner somewhat similar to the way one scans the Internet by employing Google and other search engines. The CORDRA system will be designed to have more capability than Internet search engines in that it will be able to find content specifically developed for learning within repositories.

In order to show up during an Internet search, content must be registered with each search engine company. The CORDRA system will work on the same principle, with organizations registering sharable content stored in their repositories in what is now called the ADL Registry (ADL-R). Initially, the Registry would only register SCORM-conformant DoD courseware.

"All new content will be registered in the SDL Registry for the DoD," Freeman said. "Our expectation is to have other registries running under the CORDRA approach, where you would have to have these registries connect together as well. Basically, this is pretty mature technology, so it's just putting it all together."

Another problem with the original "Big Repository in the Sky" concept is that developers do not want to up give their content, but would rather keep it where they can use and safeguard it, Freeman said. That approach is acceptable to the ADL Initiative organization, just as long as they know where it is and can direct people to it through the ADL Registry process, he said. Once they have found the content they wanted to use in their curricula through the CORDRA system, potential content sharers would just have to negotiate the reuse

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of the content with the developer-owners, Freeman added.

Rather than initially mandating that CORDRA standards be adopted, the ADL Initiative would prefer the same type of current voluntary government, industry and academic collaboration that has led to the development and widespread acceptance of the SCORM standards, Freeman explained. The ADL Initiative leadership hopes that there will be the same kind of global acceptance for the CORDRA system as there has been for SCORM. That may be already happening. The most recent International CORDRA Workshop was held at Victoria University in Melbourne, Australia early this year. (More information on CORDRA can be found at www.adlnet.org and www.cordra.net/)

Simulation and Gaming Technology

Simulations are powerful tools that increase training effectiveness. The capabilities and effectiveness of online training and learning can be enhanced through the use of simulation in ADL delivered courseware. According to Freeman, the organization is looking to gaming technology as a means to incorporate simulation into ADL courseware. An example of this approach is the Civil Support Team Trainer (described in *MS&T* 2/2005).

"One way to think about games and simulations is that they are the laboratories and practical exercises of a virtual classroom," Freeman said. "That's a chance for you to do something much more hands-on and interactive. So at the appropriate time in a course, we want to make sure that you can call on a game or simulation."

There have been technological problems with being able to incorporate simu-lations into

Above
The Civil Support Team Trainer.
Image credit: Engineering and Computer Simulations, Inc.

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ADL courseware in the past, due to lack of interoperability, the size of simulation files, lack of bandwidth and other issues. However, ADL prototype efforts like the Civil Support Team Trainer have proven that gaming technology can work to solve these problems.

"Prototypes have shown that we can launch games and simulations from inside SCORM-conformant courseware," Freeman said. "We have been going through crosswalking with the High Level Architecture standards and the HLA model with the SCORM data model because there are parallels there about what information is captured and what is available inside the HLA part of things. But being able to call on and launch a simulation or game from a course is an important thing for us."

However, as important a step as the ADL organization considers this to be, another major consideration is that a game or simulation be brought into the course at the appropriate time.

"We are beginning to look at how to take all kinds of environments and integrate them into the learning environment," Freeman said. "However, in a perfect world the learner should not have to go out and stop a course to play a game if that is what is necessary for the next thing in the learning continuum. He or she should also not have to stop a game to take a course."

"We should provide those personnel what they need at the time they need it. That takes integration." Freeman continued. 'I will be calling this the workflow of learning. It's not just simulations and games, it's the collaborative environment."

The ADL Academic Co-Lab in Madison, Wisconsin co-sponsored the Games, Learning & Society Conference this June, along with the University of Wisconsin-Madison School of Education.

Technical Manuals

The use of simulations in electronic technical manuals to enhance learning is another avenue of research for the ADL Initiative. A prototype program to demonstrate this approach has just begun at the ADL Job Performance Technology Center in Alexandria. This center not only supports the research and development of job performance technologies in support of the DoD Training and Transformation (T2) Initiative but for many other federal governmental agencies as well.

One of the projects is to investigate the interoperability of the S1000D Technical Data Specification used in the creation of technical manuals with SCORM. This work will include the study of the reuse of simulation and games in online electronic technical courseware, along with job performance aids.

"What the learner on the technical data side needs is the technical information in that learning environment as a piece of job performance activity, or a game or simulation, to practice the task they have in front of them," Freeman said. "The goal in this study is to prove that we can put a course content in one repository and tech manuals in another and share the content back and forth. This is so no matter in which environment you need to learn, we want to be able to bring that content to the person at the right time."

Becoming Involved

Prototypes are playing a vital role at this stage of ADL research and development. The Joint ADL Co-Laboratory in Orlando, the arm of the ADL Initiative Network responsible for ADL research and development for the US military services and organizations, is encouraging industry and other parties to become involved in the ADL R&D process. The Call for Fiscal Year 2006 Prototype White Papers is a "solicitation for innovative approaches and concepts to obtain unique and creative solutions, technologies and state-of-the-art approaches to training."

Initial funding for selected projects will be provided through an Army Broad Area Announcement (BAA). The target call date for the FY 2006 prototypes is August 2005; target award date is February 2006. Those interested in submitting a white paper should contact dave.bukovey@us.army.mil (407) 282-6404.

Prototype projects will be selected to meet training requirements submitted to the Joint ADL Co-Lab by the US services, the Joint Forces Command (JFCOM), the Joint National Training Capability (JNTC) and the Joint Knowledge Development & Distribution Capability (JKDDC) organizations.

The Joint Co-Lab is holding its ADL Implementation Fest August 22-25 at the Orlando Airport Marriott. On the last day, the event will feature an extensive session on the use of games for training. For more information, contact peggy.lewis2@us.army.mil or go to www.jointadlcolab.org.

Several FY 2004 ADL prototypes will be demonstrated at the 2005 Interservice/Industry Training, Simulation and Education Conference, November 28-December 1 at the Orange County Convention Center in Orlando. A number of ADL- related papers will also be presented at this event. MS&T

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