Advanced Distributed Learning (ADL): A Story of Partnerships and Collaboration

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The Advanced Distributed Learning (ADL) initiative was undertaken to make education, training, and life-long learning available anytime, anywhere (Fletcher, Tobias, & Wisher, 2007). Relying on information and communicative technologies as well as many partnerships, ADL has developed a reference model of specifications and techniques that are being adopted by governments, businesses, and schools globally. A featured method of work was the development of an ADL Collaboration Laboratory (Co-Lab) network that seeks inputs and provides outreach to different learning sectors, the government, the military, education, and workforce development.

The Advanced Distributed Learning Initiative

Learning in ADL refers equally to education—preparing people for life—and to training—preparing people for specific tasks, jobs, and careers. Distributed refers to delivery anytime and anywhere, including formal settings such as classrooms and also informal venues such as homes, workplaces, or any place where someone might seek assistance in learning. Advanced is meant to emphasize learning that is presented interactively and adaptively, capitalizing on the capabilities of computer technology to adjust quickly to the needs of individual learners.

The ADL initiative was undertaken by the Department of Defense (DoD) in cooperation with the other Federal Agencies through an Executive Order in making education, training, and job-performance aiding available anytime and anywhere. The central role for DoD may surprise educators, but the extent to which DoD is involved in all levels of instruction is both large and comprehensive. Given the scope and intensity of this activity, it does not seem unreasonable to expect the Defense community to exercise leadership in developing ADL. From the start, however, it was clear that DoD could not do this in isolation.

The development and implementation of specifications and standards is undoubtedly a collaborative effort. ADL has developed specifications and techniques for portable, sharable, and reusable instructional objects. Specifications for these objects are found in the Sharable Content Object Reference Model (SCORM). Its specifications are being adopted by governments, businesses, and schools around the world. Through the use of these objects, ADL can provide significant economies of scale in the preparation of materials for training and education.

The current version the reference model is SCORM 2004 3rd Edition, issued in October 2006. The model consists of a run-time environment, a content aggregation model, and a sequencing and navigation capability. More than 50 learning management systems have been independently certified as SCORM-conformant. Nearly half are from vendors or organizations outside of the United States, some are open source.
Partnerships and Collaboration

For the past ten years, ADL has been collaborating with the major standards bodies, such as IEEE and ISO, in creating a global standard. Unique to ADL was the creation of a Co-Laboratory network with the Hub facility in Alexandria, Virginia (the Hub Co-Lab), a Joint Co-Lab in Orlando, Florida, focusing on implementation of ADL within the military, an Academic Co-Lab in Madison, Wisconsin, focusing on higher education, and a Workforce Co-Lab in Memphis, Tennessee, focusing on the civilian workplace. In addition, Partnership Labs have been created in Europe, Australia, Latin America, and Asia. Each capability develops its own partnerships and collaboration activities. All together, there are hundreds of partnerships driving the ADL Initiative.

The Co-Lab network was established to foster the collaborative research, development, and assessment of the common tools, standards, content, and guidelines for the ADL Initiative. Each is concerned with a different sector. Implementation Fest, an annual conference hosted by the Joint ADL Co-Lab, brings together military personnel, academics, and training practitioners for four days or workshops, seminars, technical sessions, and technical demonstrations. More than 350 people attended last year’s I-Fest. The ADL Co-Lab Hub in Virginia has become the center of gravity for the ADL Initiative, with testbeds that replicate many installed systems, the documentation and maintenance of the specifications, a central evaluation capability, outreach to the federal government, a gaming laboratory, and long term planning for the next phases of ADL.

Academic ADL Co-Lab

Only the activities of the Academic ADL Co-Laboratory (AADLC) are highlighted here, partly because of the limited space and partly because the conference sponsoring this paper is also in Madison. Founded in 2000, the AADLC is chartered by ADL and jointly commissioned through the University of Wisconsin System and the Wisconsin Technical College System. Its focus is research and development of learning technology tools and standards to support higher education and K-12 schools. What began as a small partnership organization to support e-learning standards in higher education has grown to an advanced learning technology research and development center. The AADLC has established partnerships with more than 60 accredited academic institutions around the world. These partnerships have helped to advance the use of common tools and standards and have yielded rich research opportunities in other advanced learning technologies.

The AADLC serves its mission through four distinct functions: administration, research, development, and outreach/services. Administrative services have grown out of a need to help faculty at collaborating institutions with grant management. Research at the AADLC encompasses a broad range of technical and educational design projects. These projects include continued development of the SCORM, instructional game design, assessment, and learning system architecture. Development at the laboratory tends to be for advanced concept prototypes but occasionally includes production-ready courses or products. The outreach/services component of the AADLC hosts several conferences, conducts online courses, and provides SCORM certification testing through the independent Wisconsin Testing Organization.

During its existence, the AADLC has spawned numerous ventures that have created opportunities for businesses, faculty, and students. Three examples of such ventures include the Games, Learning, and Society (GLS) research group, the Institute for Innovation in Undergraduate Research and Learning (IIURL), and Filament Games. The GLS research group is made up of faculty at the University of Wisconsin (UW) -Madison and several other institutions. GLS studies the use of video games in educational and training environments. The AADLC is host to several grant-funded GLS research projects and is a partner in the annual GLS conference. The IIURL began as a collaborative project with UW-La Crosse to create math learning objects using SCORM specifications. The IIURL now has
numerous grant projects underway with the technical staff at the Co-Lab. Finally, Filament Games is a start-up company that began with several AADLC student employees. Filament Games is now a $1 million-a-year educational game development company and has won several competitive bids for AADLC contracts.

These partnerships and collaborations have extended the research and development far beyond the borders of Wisconsin and outside of ADL. One organization that has engaged in an extensive partnership with the AADLC is the Florida Virtual School (FLVS). FLVS is the largest state virtual middle and high school in the United States. With over 100,000 enrollments, FLVS is transforming access to education for many students. In 2006, FLVS and AADLC signed a three-year agreement to develop cutting-edge learning technology and courseware. The AADLC has built several courses, including a new Algebra Readiness course, which is now entering the FLVS curriculum. Building these courses required using the extensive network of faculty and graduate students at UW-Madison in conjunction with AADLC technical development staff. Another project from this partnership is a series of mini-games to teach math concepts. This project is utilizing the expertise of Filament Games under contract with the AADLC, GLS graduate students, and FLVS teachers.

While these collaborations might seem to fall far from the roots of the ADL DoD initiative, they are indicative of how the Co-Lab network functions to share research findings and technology. The AADLC learns from the broader ADL Co-Lab network and uses this knowledge to advance the state-of-the-art for the academic sector. Conversely, through ongoing projects and discussions, the AADLC contributes back to the network by sharing advances in learning science and technology found in academia. While only one node in a growing network, the AADLC typifies the value of the partnership network and the impact it is having on improving learning.

**Evaluation and Payoff**

The ADL initiative, through its Training Evaluation Team, pays close attention to the evaluation literature, tracking and coding all available empirical studies on the effectiveness of online instruction. The first installment of a consequent meta-analysis was based on 96 reports (Sitzmann, Kraiger, Stewart, & Wisher, 2006). The results found Web-based instruction to be more effective than classroom instruction for teaching declarative knowledge when Web-based instruction incorporated synchronous human interaction and had a high level of learner control. When similar instructional methods were used, Web-based and classroom instruction were equally effective for teaching declarative knowledge. One purpose of the analytic strategy is to establish a baseline of results against which to compare the effectiveness of SCORM-based online delivery, reports on which are just beginning to enter the literature.

**Closing Comments**

ADL will continue to devise technologies and architectures to integrate learning environments with the SCORM model and the registered learning content. Under review are technical publications using the S1000D standard, simulations, online games with an eye toward common data models and service-oriented architectures. The technologies will maintain the ADL functional requirements of accessibility, reusability, and interoperability, all working in an open environment.

With modern day challenges of unconventional threats as well as the integration of information systems for net-centric operations, it is not surprising that the military is undergoing a transformation in the way it trains. The ADL initiative is a key technology enabler of training transformation, with thousands of SCORM-conformant courses being delivered to Servicemembers around the world and around the clock.
References


About the Presenters

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