Interviews with Badrul Khan

Interview with Robert A. Wisher

Badrul Khan: *I have been speaking in various parts of the world on the topic of e-learning. In my speeches, I credit the ADL Initiative in helping any organizational training program to be more successful by keeping design with the SCORM standards in mind. As you travel, what are some issues which training leaders ask you about SCORM?*

Robert Wisher: The purpose of the Advanced Distributed Learning (ADL) Initiative is to make learning accessible at anytime, anywhere in the world. It was undertaken by the Department of Defense to develop instructional capabilities for the Department, and for other federal agencies, to use or adapt ADL to their own needs.

The Sharable Content Object Reference Model (SCORM), developed mutually with government, industry, and academia, is one outcome of ADL collaboration. This model makes it possible for learning objects to be shared, used, and reused, without requiring a standardized computer configuration, operating system, browser, authoring tool, or programming language. Instead, ADL allows developers to do what they believe is best within each object while requiring standardized procedures for communicating between objects.

Training leaders have asked what the advantages are and how certification of systems and tools is accomplished. Among the criteria for SCORM were that its specifications should make instructional objects accessible to all learning systems; interoperable across all technology-based platforms and instructional management systems; durable across evolving versions of underlying software tools and operating systems; and reusable in the development of new learning materials. These criteria were established in 1997 based on lessons learned within the Department of Defense, namely that despite empirical evidence testifying to the learning effectiveness and efficiencies of technology-based training for many tasks, its penetration into the extensive military training enterprise was negligible. The ADL Initiative has changed this, with hundreds of thousands of completions of SCORM-compliant courses.

Concerning certification, there are currently two test centers in the U.S., with others opening in Asia and elsewhere. Vendors can submit their learning management systems to the test center for a third-party certification that their products comply with the current or an early version of SCORM (note: testing on earlier versions of SCORM will eventually be phased out). Thus far, more than 200 products have been formally certified. Alternately, users may download the test suite from the ADL Website and perform a selftest. The choice depends on requirements from end users.

BK: *SCORM has been popular in the government training arenas. Please share what value you see in the K–12 and secondary education populations endorsing SCORM?*

RW: Although ADL currently focuses on government and business applications, it has significant implications for the classroom structures, processes, and activities of K–12 education. "Learning" in ADL refers both to education, such as that found in K–12 schools, higher education, and to training, such as that found in industry and government. "Distributed" refers to delivery anytime and anywhere, including formal settings, such as classrooms and schools, but also homes, workplaces, museums, libraries, and community centers. "Advanced" refers to ADL's interactive and adaptive presentation of learning, which capitalizes on the capabilities of computer technology to adjust to the needs of individual learners.

By increasing the accessibility of instructional materials, ADL can enhance communication and cooperation between homes, communities, and K–12 schools. It can also help to harmonize the learning processes and procedures of

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Robert A. Wisher, *Ph.D., is the Director of the Advanced Distributed Learning Initiative* ***(ADL)*** *for the Office of the Secretary of Defense* ***(OSD)****. In this position, Dr. Wisher is responsible for directing and implementing the ADL Initiative within the Department of Defense* ***(DoD)****, as well as other government organizations, academia, and industry on an international basis. Dr. Wisher provides direction for the development and refinement of the Sharable Content Object Reference Model* ***(SCORM)*** *and for the continued expansion of the ADL Initiative.*

schools with those of our rapidly evolving workplaces, and facilitate collaborative efforts by students to investigate phenomena and solve problems. ADL can also help schools reach students with special needs, especially those who are homebound for any appreciable period of time, or students who do not find the elective offerings they need in their classrooms.

Perhaps most important, ADL can help schools gain access to instructional materials developed for reuse and sharing across industry and government. Within the Department of Defense, as required by the policy instruction given, the metadata describing each SCORM learning object is centrally registered. The content itself resides in an external repository. The repositories are separately managed and updated by training providers, such as the military in our case. The central registry simplifies the search across the federation of repositories and can be readily extended and scaled. This same model can be replicated within other communities.

The ADL initiative is working with the SIF (Schools Interoperability Framework) Association toward the development and implementation of SCORM into school software applications by enabling its use with the successful SIF Implementation Specifications. The SIF Association is a non-profit collaborative composed of over 1,900 schools, districts, states, the U.S. Department of Education, and international ministries of education. Our partnership with the SIF Association includes a pilot project aimed at passing digital content from a publisher to a learning platform, and passing SCORM sharable content object data from one application to another in real time, providing a more comprehensive approach for interoperability within the schools' environment.

BK: *In researching the question "What does it take to provide meaningful e-learning environments for learners worldwide?" I found that there are a myriad of issues which are critical to the development of meaningful e-learning. My research has shown that these issues encompass eight categories, including pedagogical, institutional, technological, interface design, evaluation, management, resource support, and ethical considerations* ***(http://BadrulKhan.com/framework)****. SCORM's technical standard is well understood and useful in supporting distributed learners. What thoughts might you have about the development around other categories, such as management or resource support standards? Do you envision the development of standards for other categories, such as interface design, evaluation, etc.?*

RW: I think everyone would agree that successful and meaningful e-learning depends on more than technical standards, but technical standards are probably the area in which a consensus can be gained through collaboration between government, industry, and academia. The information technology industry appears willing to build in compliance with the SCORM standard if they perceive a marketplace that ultimately rewards their investments. The institutional category you mentioned seems a challenging one on which to impose a standard, since there are many factors influencing the governance of e-learning policies and practices in private and public institutions. On the other hand, evaluation within e-learning is an area more likely to see the development of a standard, but this does not guarantee its widespread adoption. At this point, ADL plans no additional functionality to SCORM in the near future. As advised by our industry partners, we will make corrective changes and add some minor features to SCORM, which will be reflected in the upcoming SCORM 2004, 4th edition.

The development of standards for the other categories you mentioned is being pursued elsewhere, such as the SIF Association. SIF and SCORM focus on different models. SIF focuses on developing a secure, Web-service infrastructure and data objects to enable interoperability between educational applications, whereas SCORM has focused on providing a comprehensive suite of e-learning capabilities that enable interoperability, accessibility, and reusability of Web-based learning content.

BK: *Designing learning with Web 2.0 technologies is growing. How relevant do you believe SCORM 2.0 will be or designing Web 2.0 based instruction and learning?*

RW: We're looking at this now, and anticipate having more details as studies progress.

BK: *ADL's global collaborations are mostly with developed nations, including the UK, Canada, Australia, Korea, Japan, Singapore, and, recently, adoption in northern Europe. As you know e-learning is a viable method of delivering instruction and training worldwide in a cost-effective manner. The developing countries in the world would greatly benefit from the collaborations from ADL in developing learning materials. Do you see where SCORM may extend its collaborations to developing countries?*

RW: ADL has established Partnership Labs with several countries, such as Canada, Norway, Korea, and a consortium of Latin American countries. This is done on a government-to-government basis, not only with ministries of defense but with ministries of commerce, education, science and technology, and others. There is no restriction on the economic status of nations seeking a Partnership Lab, but nations must desire to collaborate on the development and delivery of world-class technologies for education, training, and research.

BK: *What is the importance of ADL and SCORM for education research? What do you feel is next for ADL and SCORM?*

RW: The ADL Initiative focuses on the use of learning objects as a way to make instructional materials readily accessible. ADL instructional objects are digital, sharable, and reusable entities that can be used for learning and are available to learners anytime, anywhere—often, but not necessarily, from the World Wide Web. Web-based instruction is an important aspect of ADL, but ADL materials may be delivered by any means, not just online.

ADL provides opportunities and a need to address issues that may be of importance and interest to researchers. Among these are ways to collect, organize, and represent human knowledge by using technology and ways to assemble those representations into educational experiences,

environments, and interactions of relevance and value to learners. There is much to be learned about how best to integrate the anytime, anywhere capabilities of ADL with current educational practices and institutions.

The ADL emphasis on access and individualization has proven to be attractive to industry and government. Its specifications for producing sharable instructional materials have been adopted globally. Thus far, however, ADL has received more attention from industry and the government than from educators and education researchers. That is why we seek to bring ADL to the attention of educators and education researchers for their consideration and review.

ADL is building toward a future in which human knowledge, held in instructional objects, is identified and collected from the global information grid (currently the Web) and is then assembled on demand for real-time interactions tailored to each learner's knowledge, goals, interests, and needs. We anticipate that learning in the future may take place through goal-driven, tutorial, and problem-solving conversations involving handheld (or perhaps worn) devices wirelessly linked to each other and to the global information grid. □

Note: The views expressed are those of the interviewee and do not necessarily represent the views or policies of the Department of Defense. Portions of the interview were adapted from: Fletcher, J. D., Tobias, S., & Wisher, R. A. (2007). Learning Anytime, Anywhere: Advanced Distributed Learning and the Changing Face of Education, *Educational Researcher, 36*(2), 96–102.

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