
INTERVIEW

Speaking Personally—With Philip V. W. Dodds

Philip V. W. Dodds is project analyst with Randall House Associates, Inc., and is an adjunct staff member of the Institute for Defense Analyses. He is the chief architect of the U.S. Department of Defense's Advanced Distributed Learning (ADL) Initiative, and was instrumental in the development of the ADL's Sharable Content Objective Reference Model (SCORM). From 1992 until 1997, he served as president and CEO of the Interactive Multimedia Association, the leading trade association devoted to promoting the fast-growing multimedia industry. In 1983, Dodds founded Visage, Inc., a developer of multimedia products such as interactive video systems, digital audio products, and system software. He served as president, chairman, and CEO of Visage before joining Randall House Associates in 1989.

He was interviewed for *AJDE* by Judy Brown, who serves the University of Wisconsin as the emerging technology analyst in the Office of Learning and Information Technology and as director of the Academic ADL Co-Laboratory.

Judy Brown: Good morning, Philip. I'm pleased that you can spend some time to inform us about your work in developing standards for advanced distributed learning.

Philip V. W. Dodds: I am happy to do so.

JB: Please tell us a bit about your background.

PD: Well, I was trained as an electrical engineer back in the seventies and spent fifteen years designing and building electronic keyboards. Those were the fun rock and roll days! A little over twenty years ago I founded a company called Visage that built interactive video systems, which were used principally for training, and later I ran a trade group called the Interactive Multimedia Association. So I learned eventually about working with industry and the market power of industry-based technical standards—first with MIDI, the Musical Instrument Digital Interface, and then with the big guys like Microsoft, IBM, Apple, Sun, and so forth.

JB: How did you become involved in the Advanced Distributed Learning, or ADL, Initiative?

PD: The long story is that way back in 1986 the Department of Defense (DoD) and the Institute for Defense Analyses approached me when I was president of Visage. They asked for advice about how to get more technology-based training deployed in the military services. They had done a lot of studies that showed that it [technology-based training systems] worked, but it wasn't being widely deployed.

One of the reasons was that developing learning content was very expensive to create. And, in those days, the various "multimedia" hardware and software platforms were unique and incompatible. Also, the platform—the hardware and operating systems—were changing so fast that investments in learning content were rendered obsolete in the time it took to develop them.

So we decided a good step might be to establish some technical standards that might make learning content be able to run on whatever system the services decide to purchase. A great idea, I thought, and one I had and still have a lot of passion about. After all, I have seen what can happen when a market can develop when, as a result common interoperability, standards really take root.

Seeing an opportunity to build a large market in which my company might be a successful player, back then I agreed to work with other industry members to create interoperability standards. It was the classic case of “enlightened self-interest.” I really hoped a rising tide would also raise my company’s boat.

I cofounded a trade group and agreed to head up its technical standards activities. DoD provided support. Back then it was called the PORTCO effort—the Portable Courseware project. And we did manage to get a standard in place. Companies like mine, Visage, Matrox, IBM, Sony, and others finally became interoperable and conformant to our specifications. Unfortunately it didn’t pan out.

JB: Why not?

PD: We were way ahead of our time. In those days the most advanced and seemingly promising technology was “interactive video,” which delivered a multimedia experience via a twelve-inch video disc. It was the hot new technology, and it was pretty impressive, but it was also very expensive to develop content. Later, interactive video gave way to so-called “multimedia” when Microsoft started to back CD-ROM technology in a big way. The big video discs couldn’t compete with the Microsoft thrust, and the effort died over a three-year period, leaving a lot of our work high and dry.

But I think the ideas were right, if not the timing. What we needed to do then and now is build an eLearning economy, and a critical mass where participants can be rewarded for building and delivering great content. That ought to be rewarded financially and at scale.

Some years later, after I closed up the Interactive Multimedia Association—its job was done—I ended up back at the Institute for Defense Analyses, but by now the Internet and the Web had become dominant. Yet the same sort of issues existed. So I figuratively signed up for another tour of duty. This time, I hoped, we would be more successful at scale. That was back in 1997. I’m glad I went at it again; now it seems to be working.

JB: I can understand why this is important for DoD, but with whom else are you working?

PD: ADL is an unusual initiative. While it is primarily a DoD-sponsored and focused project, our sponsors within DoD have understood from the beginning that widespread industry support would be key to a successful outcome. That meant we had to engage industry and academia to address common issues that might restrict the development of a robust “eLearning” economy. At the end of January 2004 we released the latest and most stable set of interoperability specifications for Web content called the Sharable Content Object Reference Model [SCORM 2004]. Over the past several years, the SCORM® has been adopted widely.

Some great implementations have occurred in academia. Initially the academic adopters included colleges and universities who were working with DoD and other federal agencies, but that has spread widely.

It turns out that the issues DoD faces are similar to if not the same as other do-

mains and enterprises. We are now working with other Federal agencies, international organizations such as the North Atlantic Treaty Organization and Partnership for Peace and interested enterprises who share our interests. These include the medical community, aerospace, and many others. What's surprising to me is the international uptake for what we have done over the past years has been so prolific. We don't even know all the players! SCORM has been translated into Japanese and French and probably several other languages. Clearly we are filling a void of some sort.

JB: What do you see as the advantages of standards in academia?

PD: It depends on what you mean by standards. I think at least some of the needs in academia are common to all communities. Search, discovery, access, and delivery are pretty common needs. These depend on technical interoperability, I think. That's what ADL has been striving towards, so I think what we are doing applies to a variety of communities of interest, including academia.

One of the side benefits of SCORM is that it requires content developers to think about learning outcomes and to develop more modular learning materials.

JB: How much of your work is based upon academic research?

PD: The research literature shows that technology-based learning can and often does work. Thus far ADL's work has focused on enabling the deployment of technology-based learning rather than its efficacy. That it is effective has been demonstrated. How to get it out there at scale has been ADL's focus. So we want to enable the capability and let good things happen in terms of quality content develop-

ment. The research has shown it can work when good content design is enabled.

JB: I understand that the SCORM is not a specification or a standard but a reference model. Would you please explain the differences?

PD: A reference model generally shows how to connect the dots. Most of the dots are existing specifications but taken alone aren't enough to make stuff work. SCORM takes a bunch of specifications from various sources—many of which ADL worked actively to develop—and defines how they are to work together. We have a motto at ADL: "Working code trumps all theories." We take that very, very seriously. When we document how to connect the pieces, we code it, test it, and share the results.

JB: What capabilities are addressed by the SCORM?

PD: Briefly, SCORM says how to create learning content so that it may be imported and exported and deliver the learning design behavior intended by the developer/creator. SCORM specifies how a learner's mastery and/or progress is tracked and how a learning management system is to interpret the results and deliver the appropriate learning experience. That's a tall order, I should say. This hasn't been technically standardized before, but with the Internet and Web as a basis, we are finally getting there.

JB: Are any of the popular academic systems conformant with ADL's SCORM?

PD: There are over thirty management systems, which have gone through the formal certification testing. Some that would be the most familiar to academics are Angel, Blackboard, Desire2Learn, and WebCT. Using SCORM content with these systems

enables the sharing of content with others using one of the other systems.

There is a lot of confusion about different systems out there right now, which I think is understandable. Many academic systems might be called Courseware Management Systems (CMSs). These terms are changing so rapidly that even those “in the business” are confused. I tend to think of a CMS as a forward projection of the standard classroom-based model where the professor is in charge. It is a perfectly valid model.

There are also products, tools, or systems that address the authoring and life-cycle management of content. These are often called Learning Content Management Systems. Most often, these systems refer to the republishing or the predeployment aspect of learning content development. Each of these environments and their respective requirements is unique. SCORM deals with the deployment part.

The SCORM has its genetic roots in computer-based training, where a course of instruction is intentionally designed to impart an intended outcome based on the performance or mastery of the learner that is tracked individually. We think that SCORM supports this approach pretty well. We also see that this individual approach has a broader capability than we initially thought. There are some pretty exciting examples of the use of the SCORM technology being applied in ways we didn't originally expect. This really gets me excited.

JB: Is this mainly a U.S. initiative?

PD: No. While it has been a DoD initiative from the start, DoD doesn't work U.S. only. Read the news. We have many, many international partners. We cannot, and must not, work only nationally. That's been the case with ADL from the start. We have many, many international partners

and we must coordinate and operate together. As an aside, I'll point out that the original name for SCORM came from a close partnership with our friends in Canada. There is a long-standing ADL cooperation internationally.

JB: With the current release of SCORM 2004 introduced in January 2004, what are the future plans for the SCORM?

PD: Simple. Deploy, learn, fix, and get stuff out to people who need support.

JB: I hear now that you have created a content repository framework called CORDRA. What is it and why should we care?

PD: Creating content that is interoperable and can be reused and recontextualized is a great step forward. But it isn't much help if you can't find and get the content. Our new effort is to create a framework that enables contextually relevant search, discovery, and retrieval of content. We call it the Content Object Repository Discovery and Retrieval Architecture. This framework will define a searchable registry of content and content repositories that federates distributed repositories in a technically lightweight way.

This effort is just beginning, but we hope to have the first implementation operational by fall of 2004.

JB: Okay, I understand more now about SCORM and CORDRA, but you mentioned earlier advanced learning. Are you looking at intelligent tutors, games, or simulations or other new learning technologies?

PD: We are examining how SCORM and CORDRA can integrate with other environments such as simulation, technical data, performance support, mobile de-

vices, and intelligent tutors. We have working prototypes in a number of these areas. We hope to develop guidance and good examples over the next several years.

JB: How can readers find more information about ADL and its use in academia?

PD: I would suggest visiting <http://www.adlnet.org/> and <http://www.academiccolab.org/>

JB: Thank you, Philip.