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SCORM, AICC, xAPI

THE INTERVIEW SERIES – PAUL SCHNEIDER, PH.D.

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I sat down (virtually) with Paul Schneider, Ph.D., whose background is firmly in instructional design and technology. Paul is the SVP of Business Development at dominKnow, a world-class authoring tool that has AI built into it. It is SaaS-based, which to me, is a must. I wanted to dive more into the course standard discussion, and the exploration of which to use and why you must use it.

At the end of the post, there are additional articles that I strongly recommend reading. They include an interview I had with Paul a couple of years back.

Please note that the term “learning system or learning systems” refers to any type—LMS, LXP, Learning Platform, EXP, and so forth.

(The Interview responses have been slightly edited for clarity and length.)

What is SCORM, and what is its history?

SCORM, or Shareable Content Object Reference Model, is a learning interoperability standard. It is a set of rules for how content pieces (*commonly referred to as “courses”*) and systems that host this content (*widely called Learning Management Systems or LMSes*) communicate.

If you go way back to “ancient” learning days, circa the 80s, there was learning content and learning systems (on local area networks or wide area networks (*LAN and WAN, neither of which were online*), but they only talked with each other if they were from the same vendor or used a proprietary approach. In the late 80s, AICC, the predecessor to SCORM, was born. Fast forward to the early 2000s, and a US government-sponsored group, the ADL Initiative, took the best of AICC, added some much-needed changes, and SCORM 1.0 was born.

Funny story, but I was talking to a customer prospect for dominKnow | ONE, and they said they needed SCORM 1.2 vs SCORM 2004 as it was newer. Well, the opposite is true. SCORM, like any product, has had various releases or iterations. SCORM 1.0 quickly became 1.1 and then 1.2. It stuck at 1.2 for a couple of years, and then a major new initiative resulted in SCORM 2004 1st edition, 2nd, 3rd, and finally 4th (*it never took off in the industry, which is why if a vendor offers it, they use the 3rd edition*). In the mid-2000s, software changed from versions to “years” in their naming convention, hence the “year” name. Of course, that trend has shifted back.

One of the biggest challenges I see in the industry is which one (or the ideal one) someone should use (not from a vendor perspective) when creating content, using content in a system, or building it in an authoring tool.

The most crucial decision is what version of your LMS (*or another learning system*) and/or your Authoring Tool, or off-the-shelf content, is what course(s) standards they support and that it matches up (*thus if your content was built using SCORM 2004, 3rd edition, then your system has to support it too*).

Let's assume that I am totally new to this. I see that my system, or the ones I am considering, has multiple course standards. Which one should I use when creating or purchasing content?

Well, besides following the adage that newer is better, there are two significant, consistent factors that SCORM 2004 3rd (and 4th edition) supply. When learners take test questions, each question text is reported to the LMS and can be reported on. In SCORM 1.2, the text is not reported, and only an ID is communicated.

The second is the amount of information about the learner's experience in the course that can be stored. As you design more complex content that uses variables or enables bookmarking for tests (just two examples), the course will need to store more details so that when a learner leaves a course and comes back, it will remember all those details.

Well, SCORM 1.2 maxes out at a pitifully small amount. Remember these days when people thought would need more than 64k of memory! The end result is that the course and LMS may not correctly remember this information or only part of it causing your learner problems. While some LMS systems have "ignored" the standard's limit to eliminate this problem from happening, it isn't something you can always count on. SCORM 2004 editions all expanded on this, and it is still a small amount, but it meets most purposes.

Many vendors mention they have SCORM. Can you explain in laypeople's terms the ideal use case for using SCORM?

If you create your own content to help people that work in or with your organization and you want to retain control of the content, you will 100% want to be using an authoring tool like dominKnow | ONE, (Adobe) Captivate, or the like as this will make your content portable and when and if your Learning system is no longer meeting your needs, you can then easily take your content and put it into any other learning system you like. One other is in terms of reach.

If you sell or distribute your content to customers or partners, it is highly likely that they will NOT want to launch/take it from your learning system (assuming you have one), but instead want it in their learning system. In that case, you will want to use an industry-standard SCORM. Last, if you are targeting B2C, then it may be different, (*there are*) many self-contained systems that are perfect for this market, and honestly, you need not concern yourself with SCORM.

If a vendor only has SCORM 2004 3rd edition, and your content is built only in SCORM, will it work on that system? In other words, is their backward compatibility?

Great question. Sadly, no. There is no forward or backward compatibility, so you DO need to make sure the content and the learning system support the same version. However, the majority of the content built today was done using an authoring tool or a built-in authoring tool (*I refer to the term as content creator*), and almost any of these tools will minimally support publishing content, such as SCORM 1.2 and SCORM 2004 3rd edition.

Why would anyone still want to use AICC?

Well, AICC may be an oldie but a goodie, but there is still one primary use case for which it may be utilized. AICC's approach allows for the content to live on one server (or website, if you will) and the learning system to be on a completely different system.

With SCORM, the technology approach has the content (courses) uploaded to the learning system and live on the same server. For those who need to keep the two separate (e.g., *selling it and want to better control the content, or need it on two different systems for a maintenance or security reason*) this can be a good solution. Of course with more modern security infrastructure, the AICC approach may not work in every environment. Companies such as Rustici (*the company behind SCORM Engine, Watershed LRS, and, TinCan – aka xAPI – in conjunction with ADL*), dominKnow, and Gomo (SaaS authoring tool) have solutions that can provide a more modern solution that gives that same AICC advantage but enables AICC and SCORM to utilize this approach.

What does xAPI (course standard) mean when a vendor says it? What exactly is it, and is it better than SCORM?

xAPI originated around 2013 from a working group sponsored by ADL and led by Rustici. The goal was to improve upon the SCORM standard. Rustici started by interviewing various people who were well-versed in the pros and cons of SCORM to develop a plan. I was lucky enough to be one of those participants! The end result became xAPI. One of the primary goals was to utilize a more modern technical approach.

A second was to increase the richness of the data about what a learner's experience within the content. SCORM was pretty much only telling people if the learner launched the content, if they finished it, and if there was a test, what score did they get, and what were the individual responses on those test questions. A third was to enable learning content to not just send data for reporting/analysis but to use that data in the learning experience. One example we have all experienced is a leaderboard that lets us know how everyone else did on a shared but asynchronous (*preferred method for learning/training in the corporate world*) experience.

If you were buying a system, which course standards would you want?

You really can't escape SCORM, so from that sense, if you want to ensure compatibility you'll want support for 1.2 and 2004 3rd and/or 4th edition. However, xAPI is the future, and you can do so much more with it. So if buying something new, you definitely want to make sure this is supported.

Further, if you have a good understanding of the type of data and information you want to gather, as long as you make sure your chosen content creation system and learning portal both support xAPI you could go with just this support. One thing to note xAPI needs a learning portal that has a Learning Record Store or LRS. Some LMS systems have an LRS; you can also buy standalone LRSes, and there are open-source LRSes. Not all LRSes are actually following the standards, so do not get sucked in when someone says oh yes we have an LRS. Check to ensure they are conformant or can speak to when they will be. You can find the ADL conformant list here: <https://adopters.adlnet.gov/products/all/0>

Oh, and if you have one learning system and a separate LRS, yes, you can produce courses that send data to both systems at the same time. However, this capability is definitely less common, so you will want to confirm this with your prospective content creation tool and then test and verify!

Why hasn't xAPI taken off in the industry with folks building the courses, buying 3rd party or learning system/learning technology vendors having it at all?

You know the old adage, build it, and they will come? Well, in this case, it hasn't really applied, as what was built was the framework for doing just about anything. With xAPI you can now track just about any data point, and you have the ultimate flexibility. The problem with this is learning professionals now have to identify what they want to measure, how they want to utilize that data, and then how and to what the data relates and or ties to ROI.

When for 20 years all you could communicate was did they show up and get a passing score, that is a lot to think about and transform. The good news is the standard has continued to evolve, hello xAPI 2.0 (*to date, very few vendors offer this new version*), and learning professionals and organizations have developed strong use cases for why xAPI is valuable and how that additional data has helped to enhance the training solution and tied it to impact the business.

Lastly, what happened with CMI-5? Nobody seems to know what it is, let alone use it, even though many IDs and experts in that specific realm say it is far better than SCORM.

Ah CMI5! xAPI can do anything, but the problem is that xAPI can do anything! CMI5 was one of the first profiles, or “set of rules” developed that said when using xAPI, yes, you can do anything. Still, if you apply the CMI5 set of rules, your content, and LRS will communicate in this specific way, thus ensuring there is no confusion around what minimum data set will be sent and received. E.g., if someone completes the learning it could be described in many different ways, the profile specifies how and when so there is no confusion for this core set of data.