Content Standards

i) Interoperability Standards

(1) AICC

Are you in the process of choosing an LMS and stuck at a crossroad when it comes to eLearning technical standards?

You’re probably familiar with the most widely used options which are AICC and SCORM. But there’s new players on the scene as well, xAPI and cmi5

Aviation Industry CBT Committee, or AICC as we know it, is the OG of technical standards and the first to foster communication between an existing learning management system (LMS) and course content.

The benefit of using AICC is that it’s more secure and has flexible deployment configurations. However, it isn’t able to track course progress and is quickly losing support.

The original **AICC standard is still being used for legacy reasons, so it won’t disappear anytime soon, but for all intents and purposes, it’s a dead standard**

(2) Sharable Content Object Reference Model (SCORM)

(3) PENS Package Exchange Notification Services

Traditionally, publishing courses to an LMS has been cumbersome. Some LMS’s require a dozen or more steps to import content. There’s a better way, and it’s called PENS.

PENS is a specification which allows one-click publishing from an authoring tool to an LMS. PENS isn’t a replacement for SCORM, the Experience API, cmi5 or AICC. It works in conjunction with existing specifications to remove an additional layer of friction between eLearning products.

(4) Learning Tools Interoperability (LTI)

Today’s education market includes a growing number of high quality web-based applications that enhance teaching and learning. These applications range from general communication tools for chat and virtual classrooms to domain-specific learning engines for particular subjects like mathematics or history.

Ideally, any Learning Management System (LMS) ought to provide access to these myriad learning applications. It ought to be possible to mix-and-match these applications within the context of any given course. To this end, some LMS vendors have developed proprietary extension frameworks that make it possible to “plug-in” external applications. Instructors and students navigate into the learning applications by traversing carefully crafted hyperlinks, and data flows between the two systems via custom communication protocols.

While these proprietary solutions often work nicely, they have a high total-cost-of-ownership because each integration represents a point solution that must be re-invented for each LMS / learning application pair.

The IMS LTI standard aims to deliver a single framework for integrating any LMS product with any learning application. This document introduces the conceptual foundations and architectural principles that underlie the LTI standard.

(5) IMS Common Cartridge

Common Cartridge (CC) is a set of open standards developed by the IMS member community that enable interoperability between content and systems. Common Cartridge basically solves two problems. The first is to provide a standard way to represent digital course materials for use in online learning systems so that such content can be developed in one format and used across a wide variety of learning systems (e.g. course management systems, learning management systems, virtual learning environments, or instructional management systems). The second is to enable new publishing models for online course materials and digital books that are modular, web-distributed, interactive, and customizable.

(6) CMI5

The world of e-learning roughly knows two standards: SCORM and xAPI, which was initially named Tin Can. But xAPI offered so many possibilities, that it needed a set of rules to be able to have focus and impact. That set of rules is what we now call cmi5. Short for “computer-managed instruction”, it is able of tracking learners results, just like SCORM.

(7) LETSI RTWS

**Most previous e-learning specs require a constant connection to track content**. Content can be suspended and resumed later, but the content can’t be experienced offline while it’s suspended. An LMS can provide an offline version of its API so a user can experience content offline, but it requires extra work for the LMS and not every LMS offers this feature.

**LETSI RTWS gets around this limitation** by making it possible to create a proxy for the content to communicate with, and the proxy can communicate with the LMS. It’s an elegant solution, but it does have one slight limitation — content has to be launched in a connected environment before it can be taken offline.

The work that we did with the Tin Can API in this area was based directly off of previous RTWS progress. **The Tin Can API offers the same capabilities as RTWS, but takes it a couple of steps further**. A piece of content/activity that uses the Tin Can API can be smart enough to detect whether or not it has a network connection. If there is no connection and the content/activity has its own storage, it can store data locally and transmit back to the LRS when a connection is present. Plus, activities can start offline, unlike RTWS.

**The nature of the Tin Can API also makes it great for tracking long-running content**, where it’s impractical to keep a SCORM session open for weeks at a time. Think of a simulation or serious game that a user might interact with over a period of days or weeks — it shouldn’t be re-launched from the LMS for each interaction. The Tin Can API provides for a good solution to this problem.

What are your thoughts on the Tin Can API solutions to tracking content offline, tracking intermittently connected content, and tracking long-running content? See the comments below to see how we got to where we are today, and add your thoughts/concerns to the list

(8) TinCan / xAPI

The Experience API is an e-learning software specification that allows learning content and learning systems to speak to each other in a manner that records and tracks all types of learning experiences

ii) Accessibility

1. Section 508

Section 508 compliance in eLearning requires the course content to be built in a way that it becomes easily readable to those with reading disabilities. It ensures that the eLearning content follows the minimum acceptable standards while using multimedia in courses, such as “the use of text descriptions for graphics etc”. The main purpose of Section 508 is to eliminate barriers in information technology. It enables availability of new opportunities to people with disabilities, while using technology to help such people achieve their goals