Instructional Systems Design With SCORM in Mind

Introduction

In 1996, the Department of Defense (DOD) identified several factors that highlighted the need for DOD to provide on-demand instruction for individuals and units worldwide. The following year, it developed a department-wide strategy to harness the power of learning and information technologies in order to modernize education and training. The strategy was called the Advanced Distributed Learning (ADL) Initiative, and its charge was to develop consensus standards for training software and associated services in order to bring about savings in development time and associated resources. This initiative soon resulted in the first version of the Sharable Content Object Reference Model (SCORM).

What Is SCORM?

SCORM is a suite of technical standards that enables web-based learning systems to find, import, share, reuse, and export learning content in a standardized way. A reference model is a paradigm that identifies what kinds of services will be needed to solve a particular problem, how they can be put together, the relevant standards that apply, and how they might be used.

These technical standards were established to achieve four goals: the reusability, accessibility, interoperability, and durability of instructional content. SCORM content can be delivered to learners via any SCORM-conformant Learning Management System (LMS) that uses the same version of SCORM. The following table lists the goals of SCORM and their respective descriptions and benefits.

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<tr>
<th>Goal</th>
<th>Description</th>
<th>Benefit</th>
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<tbody>
<tr>
<td>reusability</td>
<td>• Content is independent of learning context.</td>
<td>the ability to incorporate instructional components in multiple applications and contexts</td>
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<td>• Content can be repurposed for different learners, enabling complex direct learning experiences.</td>
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<td>accessibility</td>
<td>• Content can be readily identified or discovered by the learner when needed.</td>
<td>the ability to locate and access instructional components from one remote location and deliver them to many other locations</td>
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### Interoperability

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<td>interoperability</td>
<td>• Content can be shared across system platforms that conform to the same model (i.e., hardware, software, browsers, and tools).</td>
<td>the ability to take instructional components developed in one location with one set of tools or platforms and use them in another location with a different set of tools or platforms</td>
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**SCORM Versions to Date**

Since 1997 when the DOD initiative began, there have been four versions of SCORM: 1.2 (1st edition), SCORM 2004 (version 1.2), SCORM 2004 (version 1.3), and SCORM 2004 (version 1.4). The latest version of SCORM is more flexible than past versions. It allows remediation, pre- and post-test assessments, and conditional branching. In other words, SCORM has moved closer to what has traditionally been done in computer-based instruction (CBI) or with Intelligent Tutoring Systems.

**Impact of SCORM on Content Providers, Instructional Designers, and Project Managers**

SCORM helps content providers, instructional designers, and project managers meet their respective project requirements. It helps content providers implement reusable learning objects. It helps instructional designers identify reusable content and content sequencing strategies that can be successfully implemented with SCORM. Finally, it helps project managers realize development, time, and cost savings when a strategic plan for implementing reusable content has been identified and successfully implemented.

**What Is a SCO?**

A Sharable Content Object (SCO) is a collection of one or more assets that represents a logical unit of learning. It can be any size (i.e., course, module, lesson, activity, exercise, etc.). An asset is an electronic media unit. Examples of assets include images, sound clips, videos, and movies. Sometimes people use the terms **SCO, learning object, and content object** interchangeably.
Designing Instruction for SCORM-Conformance

Designing instruction for SCORM-conformance can be very tricky and requires a lot of planning up front.

You will need to consider your content reuse policy. For example, if you are developing instruction for a particular school and think you may eventually reuse this content in other schools, consider this in your design and make sure that the instruction can extend to these other audiences.

You will need to consider the taxonomy definitions for your metadata tags. If your organization does not have a predefined taxonomy, you may face problems when the content is reused because the learning objects will not be interoperable between courses.

You will need to design your instruction as SCOs. SCOs can vary in size. For example, a SCO can be an entire course, a lesson, a topic, an activity, or an exercise, or it can be as granular as a media asset. Consequently, you will want to avoid language in your instruction that restricts content reuse (i.e., cross-referencing). For example:

**Instead of using this language:**
“In lesson one, we discussed...”
“In Module two, lesson one, we will...”

**Try using this language:**
“In this lesson, we discussed...”
“In this lesson, we will...”

For more information about designing instruction for SCORM, please consult the references below.

**References**
