Metadata, Schmetadata

*Why do I need to know about this?*  
*— BY ROBBY ROBSON*

Imagine that you are wired into all the digital learning content on the planet. With the magical click of a mouse you can retrieve anything from anywhere. Also imagine that you are putting together a course on gardening and what you need is a three-minute video clip on hydroponics that takes a discovery learning approach.

You have to be able to legally reproduce it, it needs to be in a format that works with other content in your course, and it must run on the computers in your learning lab. How are you going to find a clip that meets all these criteria?

You could try a Web search, but Web search engines are primarily based on key words extracted from the content itself. That method won’t work for video clips since they don’t contain words, and it won’t tell you anything about the educational approach or most of your other selection criteria. To effectively find and use e-learning content, you need information about content that is not necessarily in the content. This is called metadata.

Metadata is important. Storing content without it is like piling up unlabeled boxes on a warehouse floor—the only way to find anything is by looking through the boxes to see what’s in them. From a practical perspective, if you can’t find what you need, it might as well not exist.

What’s needed is a system for labeling and cataloging content, but the value of even the best such sys-

If you want to exchange, buy, or sell learning content or work with it using more than one learning system, you will need a common language for describing it—a language that others will understand as well. That’s what metadata standards are about.

There are two important metadata standards used to describe e-learning content. This month’s column explains what these standards are, how they are used, and how they impact you if you are involved in producing, processing, or using e-learning content.

**E-learning content metadata standards**

The two metadata standards in general use for e-learning content are the Dublin Core Metadata Element Set (often shortened to Dublin Core) and Learning Object Metadata (often referred to by its acronym, LOM). Like two dialects of the same language, they are closely related but serve different communities with different perspectives and priorities.

They are not competing standards that require you to choose one or the other. Quite the contrary: the groups that maintain the two standards are cooperating, both formally and informally.

The initiative that developed Dublin Core metadata (http://www.dublincore.org) grew out of the library, publishing, and academic communities. “Dublin” refers to Dublin, Ohio, where the initiative’s first meeting was held. “Core” refers to fifteen core elements that are considered universally applicable for cataloging, searching, and retrieving content. The elements are things like title, description, contributor, and format. If you think of a metadata description as a virtual library catalog card, then the elements are the fields that can be filled out on the card.

The Dublin Core Metadata Initiative strives for universality and simplicity and has gained wide acceptance. By being disciplined about which elements it uses, it increases the chance that two people will interpret the same metadata in the same way.

The second standard, Learning Object Metadata (http://ltsc.ieee.org/wg12), was developed within the IEEE Learning Technology Standards Committee specifically to describe learning objects so that they could be discovered and managed. In this context, a learning object is anything that could be used in learning.

Learning Object Metadata had
many contributors and appears as part of many other e-learning specifications. It will soon become an accredited IEEE standard, the first produced by the e-learning standards community.

Learning Object Metadata incorporates the basics of the Dublin Core, and the Dublin Core can accommodate the educational requirements identified during the development of Learning Object Metadata.

Although the two standards are different in structure, there is nothing that can be described using one that cannot be described using the other. Plus, there are agreed-upon methods for translating back and forth between the two.

If you are interested in digging deeper, I have collected some links to the efforts, organizations, and specifications mentioned and put them at http://www.eduworks.com/metadata.htm.

Metadata is flexible

Standards are developed as means to ends. The “end” for content metadata standards is being able to store, find, retrieve, exchange, sell, buy, and properly use e-learning content.

Metadata is needed for the many learning content repositories that are being developed today by national initiatives, commercial interests, professional organizations, and consortia. Metadata is also needed as part of other standards that define how e-learning content can be created, chunked, transported, and delivered.

At the same time, metadata standards cannot work very well without a great deal of flexibility. As languages for describing content, they must themselves accommodate multiple languages and multiple perspectives on the same learning content. One size cannot possibly fit all, and the developers of the metadata standards recognize this.

The elements in the standards may determine what you can say about learning content, but you get to decide how, how often, and in how many different ways you say it. For example, you can specify an English title, a French title, and a Chinese title for the same learning content; you can add your own lists of keywords for classifying instructional material; and you can refine an element like contributor so that you can better differentiate among types of contributors, e.g., primary versus secondary contributors.

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Metadata standards are designed so that your learning systems can communicate with external systems using standardized elements and keywords, but they also allow you to use additional keywords and elements for your own purposes.

By the way, there is also nothing wrong with having more than one metadata description of the same content. That video clip on gardening may also be an excellent example of time-lapse photography techniques, so why not have two separate metadata descriptions that reflect these different purposes?

While it’s crucial that two systems be able to recognize when they are dealing with the same content, it’s also beneficial to allow different organizations and communities to describe the same content in different ways. For a detailed look from the perspective of a community using metadata standards, see “A Primer on Metadata for Learning Objects” (October, 2001, p. 26).

So what?

Given that metadata is important and standards have been developed for it, what do you need to do? What’s the next step?

The answer depends on your role in the e-learning process. If you are an e-learner, you should stick up for your rights and be no more willing to use content and products without your responsibility to describe it with metadata. If content is worth creating, then surely it is worth describing so it can be found. This means you need to at least understand the basics of metadata. But, equally important, you should insist on having tools that allow you to create and manage metadata with a minimum of effort on your part.

Finally, if you make e-learning products, then you need to enable them with metadata. Your customers need it. To do this, you will need to get into the details of how metadata is encoded for computers, but since metadata permeates all of the specifications on which products are being built today, you’ll have to do this anyway.

So what’s the bottom line? Metadata is a key ingredient in e-learning. Everyone involved in e-learning needs to be aware of metadata, and everyone involved in e-learning needs to help promote it and make it happen.

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