

E - LEARNING



An Objective View of Learning Objects

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To some people, I'm sure it seems like we've been hearing about the promise of learning objects for several years. And I'm certain that for others, learning objects are a brand-new concept, and a confusing one at that. Although, to date, learning objects have been more promise than practice, they represent one of the more exciting elements of e-learning and should be understood thoroughly by anyone who is serious about e-learning.

The term *learning object* represents a combination of the concept of learning and the paradigm of object-orientation widely used in computer science. Two

important concepts from traditional object-orientation apply: 1) A traditional object in the computer science world is self-describing. In other words, it contains all of the information about itself so that it can be located at any time and its capabilities can be "read" by whoever wishes to use the object. 2) A single object can be used in multiple places, which obviates the need to duplicate the capabilities of the object in every place.

Those key notions of objects in the traditional computer science world were borrowed by the learning industry to arrive at the concept of the learning

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object. A learning object is a self-describing, self-contained small chunk of learning that accomplishes a specific learning objective.

Let's focus on some of the key terms in that definition.

Self-describing. The term *self-describing* implies that, in addition to the content, a learning object contains a description of itself, including such information as the type of content; learning objectives, author, language, and version; and when the content was created. Look at the Properties menu in any Microsoft Word document for a rudimentary example.

The information describing an object in that manner is usually referred

to as *metadata*. To arrive at a good example of metadata, imagine what happens when the barcode on a product is scanned. The barcode provides instant information about the product, including its name, product category, quantity, and price. The metadata affixed to a learning object can be viewed as similar to a barcode affixed to a product. By "reading" the metadata, an individual or a system can get all of the information about that learning object to help decide how to use it best.

Self-contained. The term *self-contained* emphasizes that the content in a learning object should be complete enough to accomplish one or more learning objectives. Think of a learning object as

Just in time

a comprehensive module inside a course. Though the learning objects can be assembled and delivered in aggregate form to satisfy a larger learning goal, each learning object in that aggregation should satisfy at least one well-defined learning objective.

One way many organizations use learning objects is for just-in-time learning. Dubbed "electronic performance support" years ago by Gloria Gery, the ability to call up small nuggets of information quickly at the moment of need is an inherent concept in learning objects. Because each object has meta-

data describing its content, the ability to search and retrieve learning objects quickly is a benefit cited by proponents.

Reusable

In addition to instant access, another key element (and benefit) of learning objects is the ability to reuse and share them across courses. That's one area in which a learning object becomes significantly more interesting and useful than the traditional course module. At the same time, it's a controversial issue in the e-learning industry.

The notion of creating small, reusable chunks of learning isn't new. In traditional classroom teaching, instructors often gather all of the material first, break it into

small units, group it into modules that address specific objectives, and then pull those modules together in a particular order that makes sense for the course they intend to teach. If an instructor teaches multiple courses on the same subject, he or she often reuses some of the modules across those courses. The practice of reusing saves the instructor time.

So, why does similar reusability in the e-learning world create controversy?

In classroom delivery, learners' experience is dictated mostly by the teaching style of the instructor. Even when the instructor reuses modules from various sources, the fact that the same person is teaching the entire course guarantees some level of uniformity in the learning experience.

In the e-learning world, however, when learners take a self-paced course, the instructional style that dictates the uniformity of the learning experience is almost always embedded in the content. If a self-paced course is assembled from learning objects created by different sources, there's no way to guarantee that participants are going to receive a uniform and consistent learning experience. Because the instructional style in each learning object could be different, learners will likely receive a potpourri of instructional experiences within the same course. That issue creates violent arguments among even the most mild-mannered instructional designers about the practicality of reusing learning objects across courses.

There is a middle ground: When learning objects created by the same author or vendor are used to assemble a course, the likelihood is that the learning experience will be consistent. That approach enables organizations to take advantage of the power of reusable learning objects, without compromising the quality of the learning experience.

Another way to leverage learning objects from disparate sources is to use

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them as independent activities inside a curriculum, instead of using them as modules in a single course. Learners expect uniformity and consistency within a single course, but when signing up for a curriculum, their expectation is that it will contain a diverse set of activities. It's acceptable to learners that two learning objects in a curriculum offer different learning experiences.

The impact of standards

Another potential alleviation to the issue of reusability is through the work of the committees that are currently defining industry standards.

The Learning Technology Standards Committee of the Institute of Electrical and Electronics Engineers (IEEE) has a working group for Learning Object Metadata. The LOM working group has been defining how learning objects should be modeled, represented, and packaged. The concepts defined by the LOM working group have influenced how a sharable content object is defined within SCORM, a leading industry standard (addressed in last month's column).

The current version of SCORM defines how sharable content objects can be represented in a package and how a learning management system, for example, can launch and track SCOs. The future versions of SCORM are headed in the direction of defining how SCOs in a SCORM package can be sequenced at delivery time to offer a truly adaptive course.

Though such standardizations would enable widespread use of learning objects in the e-learning industry, standards don't necessarily offer an effective solution to all of the issues of uniformity and consistency of learning objects across courses.

How to shop

Almost every technology supplier in the e-learning industry claims to have tech-

nology support for learning objects. Similarly, nearly every content vendor claims to offer content in the form of learning objects.

Here are a few useful questions to consider when shopping for technology or content that supports learning objects:

- Does the technology support standards-based learning objects and enable their easy creation?
- Does the technology let you aggregate learning objects easily to create courses or curriculums?
- Does the solution come with a central content repository where the learning objects can be stored, located, and managed?

- Will you be able to deliver, track, and report on learning objects?
- Will you be able to create and use learning objects that originate from existing content, such as PowerPoint files?
- If an update to a learning object is made, will it automatically update all of the courses that contain that particular learning object?

Learning objects have made it possible to move content across learning systems in bite-size chunks as opposed to

in entire courses. Learning objects have also made it possible to reuse and share information across courses, and ease the maintenance of courseware. The influence of standards on learning objects has even helped promote interoperability between suppliers.

But because of the issues of reusability from disparate courses and vendors, the jury is still out on the ultimate success of learning objects in the e-learning industry. It will be a challenge to improve the uniformity and consistency of the learning experience delivered by a course containing a diverse set of learning objects. More innovations

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are needed to make learning objects a ubiquitous success.

Overall, learning objects represent an incredibly useful concept for busy professionals who want just-in-time and adaptive learning, and for authors who want reusability within their course curriculums. Although the kinks still need to be worked out, the practice of using learning objects will soon overtake the promise.

For more on learning objects

 WWW.LEARNINGCIRCUITS.ORG/2002/APR2002/MORTIMER.HTML

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