The e-learning marketplace is increasingly focused on content and content management. Industry standards like the shareable content object reference model (SCORM) reflect this trend, as does the emergence of the learning content management system (LCMS) as a product category. A key concept that has evolved as a natural step in the industrialization of learning content production is that of a reusable learning object. What are reusable learning objects and how are they realized in SCORM and other standards? I would like to share a perspective on these questions and look at some changes that reusable learning objects might bring about.

Learning content production
Today, content development focuses on courses and training modules as the end product. Assessments, diagrams, simulations, and other learning content may be created along the way, but these intermediate products are generally not distributed or sold separately.

The intermediate results of the content production process, however, have intrinsic value. Efficiency and quality can be improved by reusing portions of content that have already been built and have been proven effective. It is therefore worthwhile to identify and save components that can be used as part of more than one learning product or learning environment. These components are referred to as reusable learning objects.

As time goes on, we can expect to see the evolution of a separate industry that produces and sells reusable learning objects independently of any specific course or training module. This is a natural development, but e-learning is still a few steps away from that level of industrialization. For now, we have some early specifications and standards—some of which are embodied in SCORM—and a healthy amount of experimentation and innovation. On a concrete level, the industry is struggling with some very basic questions, such as “What is a learning object?” and “How should I break a course up into sharable content objects [SCOs]?”. These types of questions illustrate the significant progress we have made as well as the challenges that lie ahead.

SCORM content production
SCORM allows for two types of reusable learning objects, called assets and sharable content objects. Assets are pieces that make up SCOs and can be as small as an individual graphic or as large as an entire website. From a production perspective, an asset is any object that should be isolated either because it has potential for reuse or to make it easier to build, maintain, and update content that contains the asset. Assets can be effectively managed using content management (or learning content management) systems. SCORM places no conformance requirements on assets, but it is valuable to identify assets by associating appropriate metadata to them. Depending on your needs, this metadata may be as simple as an identifying label, or it may include information on educational purpose, technical requirements, and digital rights. In any case, assets are a legitimate type of reusable learning object that plays a key role in the content production process.

Sharable content objects are stand-alone reusable instructional units that can be launched and tracked in a standardized way and that can communicate with a learning management system. SCOs should be developed to support specific instructional and business objectives. An entire course could be a SCO if there is no reason to break it into smaller pieces, but it may also make sense to break a course down into separate SCOs. For example, an assessment test might be a SCO if it can be used or sold independently, but if it can only appear as part of a larger piece of content, then it might best be treated as an asset within a SCO.

SCORM has limitations that can influence design and production decisions. For example, the SCORM specifications allow a SCO to communicate with a learning management system but do not allow SCOs to communicate directly with each other. However, content production organizations are finding it feasible to create a rich variety of SCORM content and to deploy the necessary processes and tools.

Content, workflow management adopt new roles
Reusable learning objects will cause a shift in the way that learning content is produced and in the roles of peo-
ple involved in its production. For example, an important role is emerg-
ing for people who create blueprints and templates from instructional
designs and strategies, a role that might be called a learning content
architect rather than an instructional
designer. As more reusable learning
objects become available, content
management and workflow manage-
ment will become more critical and
good metadata will become essential.
People will need to develop expertise
in finding, evaluating, and assembling
reusable learning objects, which is
quite different from authoring con-
tent. Newly authored content will
appear as content components that
must meet technical and pedagogic
specifications. This will make it
essential to differentiate among the
roles of authors, designers, and
developers, even in smaller produc-
tion environments.

Thrusting market
boosts optimism
Judging from my own experiences,
many of the changes described
above are starting to take place,
especially within organizations that
view learning content production as
a business. Standards and specifica-
tions other than SCORM are
involved, but SCORM has had a
catalyzing effect and is allowing a
practice to develop and industrial-
ization to progress. I am personally
looking forward to the day when
reusable learning objects will be
widely exchanged, bartered, and sold
among different organizations and
to the opportunities and challenges
that this marketplace will bring.

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