

Learning Objects: A Rose by Any Other Name . . .

Over the last three years, the buzz in educational technology circles has shifted from “What are learning objects?” to “Whatever happened to learning objects?” Learning objects evolved out of the object-oriented, reusable code protocols of computer science in the early 1990s. Since the mid-1990s, business and industry, lead by Cisco, have successfully applied a similar concept for modularizing and reusing content to streamline the creation and delivery of training. As information proliferated and affordable technologies to support learning became available and easier to use, the concept of digitally sharing and reusing high-quality educational content looked promising. David Wiley and Erin Edwards, key scholars in the learning object debate, honed the definition for education by declaring that a learning object was “any digital resource that can be reused to mediate learning.”¹ Over the last few years, online repositories comprising digital resources of all shapes and sizes have sprung up in the form of large, discipline-specific and NSF-funded digital libraries, community-built repositories, discipline collections, and fee-based commercial databases. In theory, learning objects should have proven useful for packaging unwieldy educational content in ways that were easily accessible, engaging, and ideally, cost-effective.

So, why has the groundswell of interest dwindled? In 2003, the EDUCAUSE National Learning Infrastructure Initiative (NLII) selected learning objects as a key theme and convened and facilitated a Learning Objects Virtual Community of

Practice (LOVCOP). But after two years of active discourse, the LOVCOP decided to disband, citing that “the subject has run its course.” What happened?

Numerous reasons can be given for why learning objects have not fulfilled their promise of transforming education. The definition was too ambiguous and broad. Faculty were not accustomed to sharing and reusing course materials. Developing high-quality learning objects required much time and costly professional expertise. The lack of indexing standards made it difficult to retrieve objects. Institutions have not invested in managing knowledge. And lastly, there was little documented proof that learning objects supported learning any better than the traditional, linearly organized course.

Just what is a learning object, anyway? One of the greatest barriers to the adoption of learning objects was the inability of scholars and users alike to agree on the definition of *learning object*, on what actually constituted a learning object. Many potential adopters were confounded when the experts repeatedly said that a learning object could be “as small as a grain of sand or as large as an ocean.” To address the “granularity problem,” those of us struggling with making and using learning objects amended the accepted definition by adding three additional conditions that must be present in order for the digital resource to facilitate learning. We established that in itself, a digital resource, even if it does me-

Why are the same scholars who were singing the praises of learning objects now predicting their demise?

diating learning, is not a learning object. Digital resources comprise simulations, movie clips, audio files, photos, illustrations, maps, quizzes, text documents, and much more. Thus, to be considered a learning object, the digital resource must include or link to (1) a learning objective, (2) a practice activity, and (3) an assessment.

What, me share? Under the current tenure and promotion system, faculty are rarely rewarded for sharing their intellectual property outside of the traditional publishing model. Furthermore, many institutions do not have clear-cut policies detailing who owns the rights to online educational content, particularly if institutional resources were used to support development. Because of ownership, access privileges, and control concerns, faculty tend to be skittish about uploading their learning objects or any other educational content onto a central server or, even worse, a server located outside of the institution.

The cost of quality. Students today are sophisticated media users and expect high-quality, easily accessible, media-rich, interactive, and authentic learning experiences. If learning objects are poorly designed or used inappropriately, learning suffers. Faculty may not be the best choice to design and develop learning objects. Though they are experts in their chosen disciplines, few have the pedagogical background, the technical skill, or the desire to sidetrack their scholarship and devote themselves to

time-consuming instructional technology project development. Creating high-quality learning objects requires a team of highly skilled professional programmers and instructional and visual designers, often supplemented with writers, musicians, animators, videographers, photographers, and illustrators. When professional services are not available or are cost-prohibitive, many institutions provide faculty with incentives such as training, stipends, release time, or student and/or staff assistance to support learning object development. Institutions may choose to invest in instructional support teams, which partner with faculty to deconstruct their traditional course materials into the content components that make up learning objects. Unfortunately, neither model is scalable, and the educational technology landscape is littered with small, stand-alone learning object projects.

Playing tag. One of the promises of learning objects was that they would be able to be seamlessly searched and exchanged globally between browsers and across course management systems (CMSs). Many of the next-generation CMSs provide central repository functionality from within their systems. However, the ability to search across databases and to pluck a learning object out of one proprietary system and drop it into another has not been realized. Nor are there workable solutions for simultaneously submitting queries to multiple search engines and retrieving content across federated collections. To achieve these goals, each object must be tagged with descriptive metadata or information about that object in order to be easily located and later retrieved from within repositories. Universal standards do not exist, and there is no easy or automated way to tag objects. To make matters worse, the competition between standards organizations to develop the de facto technical specification has been fierce and counterproductive.

Roles left undefined. Although it is still unclear who should design learning objects, there is even more confusion over who should tag and catalogue objects. Librarians, who index and catalogue published resources, are the natural choice to work with unpublished learning ob-

jects. However, this is a big job, one that librarians have yet to willingly accept. Another nebulous role involves who should be the authoritative keeper of an institution's learning object collections. College and universities are struggling with how to manage an overabundance of data, information, knowledge, and even institutional wisdom across very decentralized units. Although progress is being made in corralling the first two categories—data and information—into data warehouses and multimillion-dollar administrative systems, very little attention is being paid to organizing and protecting the second two—the institution's knowledge and wisdom, that is, its educational content. As a result, learning objects are scattered across servers housed in academic departments and colleges, campus libraries, state and federal government agencies, community-based consortia, professional societies, and even commercial entities.

Prove it to me. A repository chock-full of learning objects cannot, by its simple existence, create dynamic learning. Although learning objects have been discussed anecdotally, there are very few published case studies describing the successful use of learning objects in higher education, and there is almost no scholarly research formally assessing their educational value. The academic community needs research studies on faculty acceptance of learning objects, on the role that learning objects play in deeper learning, on the effective use of repositories, and on the value of reuse—data that could provide insight into ways to engage and motivate faculty to either participate in content development or become intelligent users of existing collections.



The label *learning object* may have run its course, but the slow shift to modularized and sharable educational content perseveres. Developers are letting go of the comfort of the book metaphor and are taking advantage of the inherent capabilities of technology to provide learner-centered, nonlinear, customizable, media-rich educational content. Standards groups recently banded together and formed working alliances to coordi-

nate and advance interoperability efforts. In what Betty Collis and Allard Strijker identify as “contribution-oriented pedagogy,” technology-savvy students are partnering with faculty to codevelop quality resources for use in courses.² To improve quality, many repository owners have added peer-review processes. Next-generation CMSs are making it easier to upload, share, and store course content that seamlessly integrates a variety of media types. Publishers, experimenting with new business models, are marketing professionally produced learning objects created from the wealth of text and media within their proprietary digital asset collections.

Although institutions of higher education are far from disassembling their long-established discipline silos, they are showing a renewed interest in multi-, inter-, and cross-disciplinary studies. Unlike textbooks, learning objects—with their ability to be navigated nonlinearly, to incorporate multimedia, and to be interactive and customizable—exist in a virtual world that can be accessed within and across disciplines, both vertically and horizontally. Some in the academic research arena are beginning to look back and to document best practices while initiating formal research studies. However, the question of whether educators are willing to change their age-old teaching practice and to develop, use, and share knowledge, in the form of “learning objects,” still begs to be answered.

Notes

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1. David A. Wiley and Erin K. Edwards, “Online Self-Organizing Social Systems: The Decentralized Future of Online Learning,” *Quarterly Review of Distance Education*, vol. 3, no. 1 (2002): 33–46.
2. Betty Collis and Allard Strijker, “Re-Usable Learning Objects in Context,” *International Journal on E-Learning*, vol. 2, no. 4 (2003): 5–16.

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