



# Time and Technology

## Take the Pain Out of Course Creation Tools

By Dan Sussman

ONE OF THE ADVANTAGES to living at the breakneck clip of “Internet time” is that, in many areas, we can put the “bad old days” behind us quickly. Take e-learning courseware development, for example. Just 10 or 15 years ago—prehistoric in technology terms—a task seemingly as simple as placing a box on a monochrome or three-color CGA screen required programming skills or, at the very least, knowledge of high-level scripting languages. The resulting courseware was relatively crude, of limited value to learners and instructors, and expensive to develop.

Fortunately, however, those days are now a mere speck on the rearview mirror, and software vendors and industry ob-

servers say it's time for those who were put-off by user-spooky, first-generation authoring tools to take another look. What they will find are hundreds of powerful software packages, many of which make courseware authoring as easy as developing a PowerPoint presentation. (In fact, a number of authoring tools, such as Articulate Presenter and Techsmith's Camtasia Studio, enable users to convert PowerPoint presentations—complete with animation and sound—into Flash animation files and other video formats that can be inserted in courseware.)

In addition to overall ease of use, the current generation of content development software enables rapid development of courseware and the ability to

deploy it simultaneously to users worldwide via the Internet.

Despite the advances, industry experts say that many potential users are still reticent to use e-learning development tools, largely due to off-putting experiences with early applications.

The earliest courseware development packages entered the marketplace in the mid-1980s, at about the same time personal computers were evolving from geeky techno-novelties to educational and business tools. While the then-new Apple Macintosh's graphic user interface and drag-and-drop capabilities represented the future of computing, most authoring packages relied on arcane textual commands and scripting, says Bryan Chapman, e-learning analyst for Brandon Hall Research.

"There were some high-level authoring languages, but they were very crude. Most of it was command-line driven, and there was no such thing as object-oriented programming," he says.

In addition, the era's storage technologies were restrictive. If one thinks of today's PCs as having memory by the

giant bucketful, the RAM in PCs 15 years ago could be measured in teaspoons. Hard drives were small, and network connectivity was a rarity. Consequently, sophisticated courseware sometimes required a virtual juggling act by users as they had to frequently swap floppy discs.

The introduction of CD-ROM as standard data storage devices in the mid-1990s represented a big step forward says Chapman. "But even then, the early versions weren't pleasant," he adds. "They were slow, so authoring tools had to become leaner and lighter."

In the mid-1990s, the World Wide Web burst upon the scene, quickly becoming one of the most popular communications media ever created, and, by the end of the decade, software developers had begun designing applications based on a web infrastructure, using browsers as the common interface in which authors could display text, graphics, and a wide variety of multimedia without a need for special viewers.

Today, says Chapman, the entire e-learning development landscape has changed. E-learning authoring tools have followed the same trajectory as many other applications. First and foremost, authoring tools are easier to use and allow faster development of course materials. There's little, if any, programming involved. Instead, applications are configurable.

"In the old days, authoring tools were designed to be used by highly technical people, but now we're seeing the other end of the spectrum," says Steve Morse, director of e-learning services at ePath Learning, a provider of Internet-based learning development tools. "The authoring tools are following the market. There are tools out there like ours that have to be more than easy, because that's what the customers are asking for."

Like many e-learning development applications, ePath Learning's BuildKit tool for course development enables nontechnical developers to populate pre-

built templates with content. Users are able to drop-and-drag multimedia content, such as graphics, sound files, digital video, Macromedia Flash animations, and so forth, into their courses. In addition, ePath Learning provides a content model—based on the organization of a university—that allows companies to organize their educational hierarchy.

In addition, developers can create reusable learning objects—self-contained chunks of training content that can be assembled with other learning objects to create courses and curricula.

New Haven Consulting Group, a Shelton, Connecticut-based developer of e-learning courses for management and supervisory skills, diversity and ethics, and sales and service training, has cut its course development time in half using ePath Learning's products, says Alan Pakiela, the company's director of program development. The company has developed an extensive library of reusable learning objects stored on ePath Learning's servers.

"Essentially, we'd been doing this on paper for years, but now we're building libraries that allow us to pick, choose, and manage our topic material," he says. "We'll develop a design document on paper for a client's course. From there, we'll go into our content library; pick and choose skill models, processes, and content areas; and recombine them for the client. Then, we'll build the appropriate development pieces to go with all of it."

The ability to rapidly develop such programs and deploy them via the net is essential for many businesses that have to train their employees quickly, says Jeff Harris, vice president of marketing for Trivantis, maker of Lectora authoring tools. He points to pharmaceuticals and consumer goods companies as examples of businesses that must disseminate product information to their global sales forces quickly in order to maintain a competitive edge.

Call centers also have a need to quickly train their employees, says Dudley Molina, president and CEO of ePath Learning.

"One of our customers runs a virtual call center, which means that their operators work out of their homes. It's not atyp-

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ical for the company to sign a contract with a new client on Friday and have to develop training tools remotely over the weekend, so 2,000 to 3,000 operators can begin taking the training on Monday. That's where rapid e-learning comes in," he says.

Many of today's e-learning development applications function as groupware. Multiple individuals can "meet" in a group workspace and work on documents together. This ability also helps streamline the development process, says New Haven Consulting Group's Pakiela.

"In the past, we'd typically collect data, write up the information, run a pilot, conduct a client review, make revisions, and the process would wind up taking weeks, if not months," he says. "But working together in real time, you can reduce time, costs and frustration for everyone."

Interoperability is another vital function that has added value to e-learning development software and helped smooth the way for users as well. While not immediately apparent to users, compliant authoring software structures courses in such a way that courses developed on a diverse array of platforms can exchange data with each other, with learning management systems, and with leaning content management systems.

Most notable among these interoperability specifications are the following:

- the Aviation Industry Computer-Based Training Committee—or AICC specification—which consists of guidelines for the development, delivery, and evaluation of computer-based training
- the Sharable Courseware Object Reference Model—known as SCORM—a set of specifications based on the work of AICC, and several other organizations, designed a unified "content model." Those specifications describe reusable learning objects that can be deployed across multiple environments and products.

"For most vendors, AICC and SCORM work quite nicely," says Brandon Hall's Chapman. "Organizations I work with use the SCORM specifications quite significantly. They'll take content from other vendors and pull it into their learning portals. The specifications also are useful in tracking scoring and performance data across applications."

He also notes that a great deal of progress in interoperability is made at Plugfest, a regular event at which numerous vendors get together to ensure interoperability.

"You'll get 60 or 70 vendors in a room, and they'll start testing the way the specification is working. I give a lot more credence to vendors who participate in Plugfest than those who implement the standard, but never try it in this environment," says Chapman.

Nevertheless, industry figures differ

on the importance of the standards. Trivantis' Jeff Harris acknowledges that some software developers have taken liberties in their implementations that have led to some confusion and interoperability glitches. But overall, he says, the situation is getting "better and better."

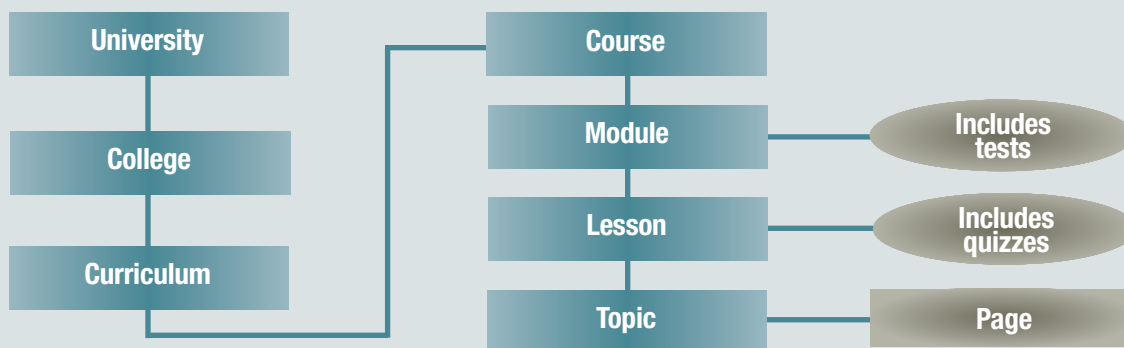
"I see fewer and fewer issues because of the standards. People understand them. I do some consulting, and I always tell clients that they should take a close look at the implementation of standards. You have to make sure you're on a path that's going to benefit you in five, 10, or even 15 years from now. If you ignore these issues, at some point they're going to catch up with you," he says.

And while ePath Learning executives acknowledge that standards are important for interoperability, they also say many of their customers are confused about them and don't understand them.

While the newest authoring tools simplify the development of courseware, ease of use is a double-edged sword: Being able to create a course using these tools is one thing, but being able to design well is another issue altogether.

"This absolutely is an issue," says Brandon Hall Research's Chapman. "Many organizations are now trying to use their subject matter experts as authors. They're experts in their field, but not necessarily in the ways people learn.

## Content Organizational Structure



Source: ePath Learning

“The number 1 problem is when SMEs look at learning content as being just an online book. They don’t think of things like active learner participation. It might not occur to them to create a discovery exercise, a simulation, or some other process that might be a better way to learn.”

A better situation, says Trivantis’ Harris, is when SMEs work in conjunction—rather than in place of—instructional designers.

“In many organizations we work with, the SMEs do a brain dump. They just organize the content; they don’t necessarily control how it’s presented. The SMEs may use Microsoft Word or PowerPoint or even Lectora as a storyboard. But once they’ve done that, it’s up to the instructional designer to organize the materials and turn them into content that can become e-learning,” he says.

An issue that perhaps is more important than the way in which organizations use e-learning authoring tools is the fact that many organizations shy away from those tools altogether, say industry figures.

“I know the demographics may conflict with this statement, but, in my experience,” says Pakiela, “people are still frightened of this software. I think you’ve got a lot of people who are remembering what e-learning used to be like.”

He also says companies that created their own customized LMS—many of which are outmoded, but represent substantial corporate investments—are reluctant to scrap them in favor of new, sleeker, efficient tools.

Harris expressed similar sentiments about the reluctance of many companies to adopt authoring software and attributed it to a lack of confidence in their abilities.

“People say they can create PowerPoint presentations, but feel that there’s just no way they can develop multimedia courses. But our customers are just amazed at what they can do, and I’m sure our competitors have similar experience,” he says. “The technology barrier has gotten lower and lower. Now we have to help users overcome that psychological barrier.” **TD**

## Authoring Software Shopping Tips

The following information is adapted from “An Introduction to Authoring Tools,” by Jeff Harris, vice president of marketing, Trivantis.

There are literally hundreds of e-learning authoring software packages available to course developers, so it should come as no surprise to learn that they vary greatly in their capabilities and approaches to course development.

The first step toward selecting an authoring software package is to conduct an assessment of your organization’s needs. Determine the functionality that’s most important to your organization and create a checklist based on those needs. For example, if printing digital course pages as hard copy is important, your software package should enable that function.

Also, keep in mind that software shopping is a discovery exercise. As you learn more about authoring tools, don’t be afraid to revise your checklist. Here are some basic points about authoring software that might help you:

**Ease of use vs. creative freedom.** As you research authoring software, you’ll discover that there’s a tradeoff between these two qualities in most packages. Many software packages offer cookie-cutter templates that can help users assemble courses quickly, but they limit customization opportunities. At the other end of the spectrum, some packages offer the ability to customize courses extensively, but the software is more difficult to learn. Many other offerings lie between the extremes.

**Automated programming.** Buy automating programming for online delivery, many tools have liberated course developers from dependence on programmers. When evaluating candidates, compare

their output formats. If you select a package that doesn’t feature automated programming, you’ll need to do some of the programming yourself or hire a programmer in order to publish your course.

**Interoperability and standards.** The ability of an authoring tool to work with other e-learning software and systems is referred to as interoperability. To be inter-

operable, an application should hew to industry standards. If your organization uses a learning management system, make sure that interoperability exists between the software you’re considering and the LMS.

**Question types.** Make sure the software you select can accommodate the types of questions you want to include in your courses (for example, fill-in-the-blank, true/

false, and so forth).

**Multiple learning paths.** To accommodate differences among learners, some authoring tools enable the creation of variables. Variables enable course developers to create “forks” in the path, sending learners in different direction based on training criteria or responses to certain questions.

**Media support.** Pay close attention to the types of media files that authoring software supports. Most support common types, such as JPGs and GIFs for graphics and WAVs for sound. Many also support video and animation formats such as MPG and Flash format (SWF files). Still others enable the user to import animated Microsoft PowerPoint files.

**Extensibility.** If your organization needs to customize the software for specific purposes, be sure that your software enables programmers to customize it to meet those needs.

**When selecting an authoring software package, the first step is to assess the needs of your organization.**