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**Practical Applications of Technology for Learning** 

The eLearning Guild's

**THIS WEEK: Development Techniques** 

# ReadyGo Web Course Builder: A User's Review and Experience

# By Steve Mirsky

y work as a legislative reference librarian at the Connecticut State Library exposes me to many complex topics. By its nature, law is a multi-disciplinary field, involving social issues and legal ramifications. Each year when the legislature is in session, our Legislative Bill Room in the library answers questions regarding the status of introduced bills. We also track bills for non-profit agencies, and archive bill file material and legislative proceedings for permanent public access.

Bill files date back to 1911, and some proceedings extend back to 1899. The Connecticut General Assembly employs a legislative aide who helps us carry out these tasks. Until now, our training material for this aide consisted of a static 13-lesson tutorial in Microsoft Word, and an HTML outline posted on the State Library Website covering the major points of Connecticut's legislative process. Many times, the person filling the legislative aide position is a college student who has nothing more by way of qualifications than a desire to learn.

Each legislative aide enters the job facing a huge learning curve and needs to start with the basics on how bills can become law. This year, not only did I want to develop some kind of tutorial for the aide to get up to speed more quickly than in previous years, I wanted the aide to learn by actually developing a large portion of the tutorial. My challenge was to determine how I could

Many organizations are interested in finding tools for rapid e-Learning development, but reviews of these tools are few and far between. In this week's article, you'll learn about one of the better-known rapid development applications, and about one user's experience in creating an important online tutorial for a State Library.



quickly hand over e-Course creation to someone who was a total neophyte, both as to the subject of the legislative process and as to Web course development in general.

# Learning the technology and researching the options

To accomplish my objective, I needed software that was interactive, easy to use, and extremely cost-effective since the State Library is a nonprofit public institution. I soon discovered that I had to overcome a learning curve of my own regarding the technology for Web course development and its requisite terminology and standards. I needed to become an informed consumer, aware of features that I should be seeking and how those features could produce the results I required.

#### Authoring tool and Learning Management System (LMS)

I learned right away that there is a difference between a Learning Management System and an authoring tool. A Learning Management System (LMS) is software that manages and delivers online content to students and also keeps track of their progress and performance. Most LMSs are Web-based to facilitate "any time, any place, any pace" student registration, access, and assessment, as well as content administration and lesson delivery. More sophisticated LMSs offer competency management, skills-gap analysis, and certifications.

Standards that a Learning Management System supports and how well it supports them were primary concerns. (See Sidebar 1 for a guick overview of SCORM and AICC.) This was important because it would determine whether the LMS could meet our requirements, such as the ability to save a score for each page of test questions. We had a lot of other questions. Would the LMS save one score per course, per test, or per question? Did we want to allow aides to retake tests and if so, would the LMS store their first score or overwrite it? Would we be able to see how many times aides took the test? Could aides return to content that they had completed? We thought this might be desirable because the aides could then use the material as a reference. Did we want to declare completion based on the aide reading all the content, or on passing a specific test? What would happen if we had multiple tests in one "unit" or "object?"

And there were more questions. Would the LMS average all the scores from the various tests? What

Rapid e-Learning works well in organizations with a bottom-up learning management structure. Organizations that use rapid e-Learning are often interested in saving time and money, and in improving accessibility by moving classroom training to the Web.



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would happen if the aide took the various tests in separate sessions? How does the LMS store and report results? Would aides need a plug-in to successfully run our courses? Beyond standards, there were also issues related to how the course behaves in response to the aide's actions. Answers to these questions and concerns would determine what kind of LMS to purchase.

I also needed to find an authoring tool to create and package the e-Learning modules for the aides. I wanted these modules to conform to international standards, even though they would only be for our use in-house. And of course, the authoring tool and the LMS would have to work with each other.

#### Traditional e-Learning vs. rapid e-Learning

Another important consideration that I discovered while doing my homework in Web course development is the difference between rapid e-Learning and traditional e-Learning.

Traditional e-Learning often delivers generic content that is fixed or rarely changes, and it may address subject matter that needs simulations or 3D models. In addition, it often targets a technically sophisticated audience of individuals who have no difficulty with tasks such as installing plug-ins. Producing this type of product requires a large budget, a long lead time, and expensive software. You create graphics, simulations, and animations from scratch. As a result, traditional development requires a team that has advanced programming, graphic design, and instructional design skills. Displaying the content requires complex interactions, high bandwidth, and plug-ins. The learning curve for developing traditional e-Learning can extend anywhere from two weeks up to six months. Traditional e-Learning works well in organizations with a top-down learning management structure, perhaps one that does not yet fully embrace e-Learning.

Rapid e-Learning tends to be the popular approach for just-in-time learning on a limited budget. It doesn't require a team of experts. Content in this environment often changes rapidly, with "hot" topics and information that requires frequent updates. Tools that support rapid development usually include built-in instructional design (often using templates), easy maintenance and re-posting, and built-in integration with many major LMSs.

Rapid e-Learning course development is usually as simple as using Microsoft PowerPoint or Word to create content. Many of the tools have a one- or two-day learning curve intended to allow any Subject Matter Expert (SME) to produce easily-deployed content. Importing graphics, clip art, simulations, and animations is straightforward, eliminating the need for a graphic designer. The software does not require plug-

#### Sidebar 1: Major e-Learning standards

SCORM (Sharable Content Object Reference Model) is a specification of the Advanced Distributed Learning initiative of the Office of the U. S. Secretary of Defense. SCORM's main function is to make it possible for developers to create Web-based learning content that is interoperable, accessible, and reusable. With SCORM, developers can make content objects (resources) from different sources available under a set of rules that specify the order in which a learner may experience those content objects. SCORM defines communications between client-side content and a host system called the run-time environment, often a learning management system function.

AICC (Aviation Industry Computer Based Training Committee) requires a little more explanation. Use of the phrase "AICC-compliant" has misled many into thinking that AICC is the name of a standard. Actually, the AICC is an association of technology-based training professionals. The AICC Web site at http://www.aicc.com explains the history and mission of the organization. The AICC develops guidelines for development, delivery, and evaluation of CBT (computer-based training, which includes Web-based training) and related technologies.

The AICC Guidelines & Recommendations (AGR) are technical recommendations. Each one makes a technical recommendation in a specific area of interest to designers and developers. There are 11 AGRs in total. Two of the AGRs have formal tests, the remainder do not.

The AGRs with tests are AGR-006 (File-based CMI Systems) and AGR-010 (Web-based CMI Systems). "CMI" stands for "Computer Managed Instruction." A CMI manages and launches courseware and tracks student progress. What the AICC calls a CMI, everyone else calls an LMS — a Learning Management System.

AGR-006 and -010 define the communication between CMI systems and CBT courseware. AGR-006 and -010 each have two major functions:

- Determine how to store student results and how the course "player" obtains user preferences (Course Server Communication)
- Determine the server load and what content to serve next (Course Structure Definition)

Originally, in the early 1990s, AICC only had to concern itself with generating courses with a stand-alone executable program that ran on a user's computer and stored user results locally on the hard disk. The executable would then transmit results to a server.

With the arrival of online applications and ubiquitous browser usage, the AICC added a browser-based format for transferring information in the files. The AICC decided to package file contents into a Web form. For Web compatibility, AICC introduced two main communication models for results and settings:

- HACP (HTTP AICC Communication Protocol) packages files as a Web page form result and posts it to a server allowing software to report results or request information from the server. The HACP standard is widely used by most LMSs and, although it is pre-XML, many consider it to be more secure and reliable than SCORM.
- 2. API (Application Programming Interface) describes how a course communicates with a parent frame, defines a series of function calls that are defined for saving different file information in a parent frame, specifies how a course can retrieve information from a parent frame directly, and specifies how a parent frame communicates with a server.

Keep in mind that unless you are an instructional designer, you normally don't need to obsess over standards once you begin developing course content. What you need is a basic understanding. If you have done your homework, and the standards were implemented correctly, the technology should be invisible to you and your students.

ins. The advanced features for creating links, tests, glossaries, FAQs (Frequently-Asked-Questions pages), and drill-down pages are normally built into the software and templates. Rapid e-Learning works well in organizations with a bottom-up learning management structure. Organizations that use rapid e-Learning are often interested in saving time and money, and in improving accessibility by moving classroom training to the Web.

#### Synchronous and asynchronous e-Learning

I also knew that I would have to make a decision about whether our aides would be using e-Learning delivered in the manner of a traditional classroom course (but in a "virtual" classroom online rather than a physical one), or delivered in the form of self-paced modules. The former approach is "synchronous" e-Learning, the latter is "asynchronous" e-Learning.

Synchronous e-Learning would require an instructor. There would have to be support for online communication between instructor and student. The instructor would have to be available and delivering content in real time and the aides would have to be available and online at a specific time. The aides are not necessarily self-motivated when it comes to learning.

Content presentation was another concern of mine. PowerPoint is the most commonly-used tool for presenting content in the synchronous environment. The PowerPoint display appears in the "whiteboard" area of most synchronous e-Learning applications, but different synchronous applications handle PowerPoint's transitions and animations differently. Some show the animations, while others do not. PowerPoint remains a presentation tool in the synchronous world.

Asynchronous e-Learning content would be avail-

able 24/7 and could stand on its own. This would make just-in-time training available when the aides are available. Content availability would not depend on instructor availability. The usual form of asynchronous content delivery is free-standing interactive modules containing text, graphics, video, and animation, and these modules could contain some form of criterion test to determine whether the aides met the learning objectives. We could support the learning process through other asynchronous technologies, such as discussion forums and listservs. These would allow participation and collaboration within a community of users.

#### Why I chose ReadyGo's Web Course Builder

Based on what I learned about Web course development technology, I now knew that I was a subject matter expert on Connecticut's legislative process. I also realized that I needed to create an asynchronous rapid e-Learning tutorial. The synchronous route was not practical for our situation in the Library.

After researching my options for getting the job done, I selected Web Course Builder, produced by ReadyGo. This tool offered a number of advantages to me as the SME and developer, and to the Connecticut State Library.

First, Web Course Builder bundled an authoring tool and Learning Management System together. This would ensure compatibility between the two key elements of development and delivery.

Second, ReadyGo's price (\$399 for institutional single-user license) was right, considering the typical state library budget constraints.

System requirements for Web Course Builder also turned out to be minimal:

This year, not only did I want to develop some kind of tutorial for the aide to get up to speed more quickly than in previous years, I wanted the aide to learn by actually developing a large portion of the tutorial. My challenge was to determine how I could quickly hand over e-Course creation to someone who was a total neophyte, both as to the subject of the legislative process and as to Web course development in general.



Registration Discount expires September 21, 2007

Sir Ken Robinson

Frans Johansson

Paul Safe

- 200 MHz Pentium computer
- 20 MB of available disk space
- Windows 95, 98, 2000, ME, NT, XP, or Vista
- Web browser
- Standard Web Server to post tutorials
- I could distribute my courses by burning them to CD or saving them to a flash drive.

I used the free 30-day demo version to determine that Web Course Builder was easy for me to use and could quickly produce the professional-looking results I had in mind. I felt that the product would support the Library's need to transfer knowledge quickly and effectively.

Add to these findings the fact that ReadyGo's Web site (see Figure 1) had a great deal of support information up front about the product and also about the basics of Web course development, and I was ready to seal the deal.

#### Web Course Builder features

In the name of due diligence, I did some additional research on the feature set and Web Course Builder's history before I committed to purchase. I wanted to be sure that the assumptions behind the design and the features of the product would be valid for my organization and our needs.

Before ReadyGo started developing Web Course Builder, they performed an extensive survey of the market. They concentrated on the Subject Matter Expert (SME). "Subject matter expert" denotes a trainer, product manager, project manager, or other employee who needs to transfer experience and knowledge to other employees but doesn't have a background in computer programming or use of sophisticated computer software. ReadyGo surveyed over 200 different organizations to identify their needs and issues in order to guide creation of the Web Course Builder architecture.

What they found was that most SMEs use the Web but don't have a concrete idea of what Web characteristics they need to design into a Web course. They have tight deadlines, need to develop courses quickly, and don't have the time or desire to learn difficult software or processes. They don't want to be bogged down creating the look and feel of a course, but instead need to focus their efforts developing course content and maximizing effective information flow. So far, this was a good match to my situation, and more particularly to the situation of the aide whom I intended to have help do the development.

The survey also revealed that SMEs aren't graphic artists. ReadyGo found that the reason so few subject matter experts were creating Web courses was because many authoring tools on the market focused on the needs of a graphic artist. If SMEs need to include graphics in a learning tool, they prefer use a clip art gallery, contract the services of a graphic artist, or use a digital camera to take a picture. Because of this, ReadyGo decided not to include a graphic design tool within the WCB, and instead provided easy methods to import and integrate Web-viewable graphics. I felt comfortable with this approach.

ReadyGo also learned that when SMEs developed Web-based training, they often stopped at the layout phase, rarely progressing onward to content creation. As a result, WCB is template-based so that SMEs can immediately begin plugging in information. Another important finding revealed that organizations consider standards-compliant integration with Learning Management Systems extremely important. Again, these assumptions and features were a good match to my requirements.

#### The Web Course Builder interface

The intent of many of the features of Web Course Builder is to ensure a far shorter learning curve compared to tools such as ToolBook and Authorware. Instructional design built into the templates supports fast course download and flexible multilevel navigation, including elements such as chapters, course indexes, and quizzes. An SME can directly import PowerPoint content and can integrate multimedia (graphics, simulations, and videos) into the course. Interactive exercises allow students to learn from practice. Quizzes reinforce content and tests evaluate knowledge retention on up to 100 questions per test. Figure 2 on page 6 shows the test template. I felt that these features would provide the kind of support we needed.

Glossary pages define key terminology and FAQs address common questions. It is easy to add links

After researching my options for getting the job done, I selected Web Course Builder, produced by Ready-Go. This tool offered a number of advantages to me as the SME and developer, and to the Connecticut State Library.

### 💋 Figure 1

The ReadyGo Web site was my link to support information about the Web Course Builder product and about courseware development.



to other Web resources, expanding the learning base. The developer or SME can input course content into straightforward forms and can rearrange the content within a drag-and-drop interface. These kinds of reference content would be vital to the success of the aides.

Content is also highly reusable since ReadyGo's structure provides many definitions of course "objects" such as chapters, pages, tests, etc. Developers can copy and paste an entire course, complete with any course settings. They can also cut and paste individual chapters, pages, FAQs, tests, quizzes, glossaries, etc. from one course to another.

This meant, for example, that if the aide or I created a glossary, we could simply copy and paste it into another course later. After regenerating the course, all the content would have a uniform look and feel across all the courses.

Another important strength of Web Course Builder's interface is its ability to easily convert existing PowerPoint presentations into e-Learning courses. Using the copy-paste function transfers titles and bullets from PowerPoint into the ReadyGo course template. Page titles and bullets are directly converted with the formatting intact, retaining the original visual layout. Adding features such as a FAQ, a Glossary, Help, and Indexes can then further enhance content. What were once graphics are now Web-ready files that the developer can add into the course.

The developer or designer can preview content, save it as an ASCII file, and either load it, or copy and paste it, into a word processor. Full support of style sheets allows changing course appearance and layout through simple pull-down menus. Courses appear after generation as multi-tier flat Web sites, with a flexible navigation path enabling students to access all pages within three clicks. This prevents "Bermuda triangles" where students enter, get lost, and never return. Site-wide navigation (home, FAQ, and site map) allows continual access to any point within the lessons throughout the course.

Figure 3 on page 7 shows one of our completed courses. You can see the navigation panel on the left, and the Home, Glossary, and Resources links across the top.

In addition, several people can work concurrently on a single course so it's possible to create standard glossaries or chapters and then share them with others who may be working on the project. Another important feature is the ability to create a printable text version of an entire course, a chapter, FAQs, a glossary, etc. for course handouts and editorial copies. Otherwise, printing out an entire course through a browser would be a slow and tedious process. While this was not necessarily high on our list of tool requirements, it was a feature that could come in handy in some situations.

Pages are standard HTML, allowing search engines and knowledge management systems to catalog them. Pages download quickly and are compatible with many browsers such as Microsoft, Netscape, and AOL. The interface also works with any size or configuration monitor.

#### WYSIWYG vs. Dialog Boxes

When developing Web Course Builder, ReadyGo had the choice of making it a WYSIWYG (What You See Is What You Get) application or using a dialog box interface. With a WYSIWYG authoring tool, course developers must hunt through multiple pulldown menus to access desired capabilities. There is an expectation that the layout the author creates will be exactly how the student views the content. This conflicts with one of the main benefits of Web browsers, which is that each person can control the size, shape, and font their own browser displays. Since students can modify their environment, it is probable that the environment a course designer uses during development will not be the same as the student's desktop. For course creators to be able to control the

#### Figure 2

The test template makes it easy for SMEs to develop effective criterion tests.

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student desktop, they either need to take control of the browser, requiring use of a plug-in, or they must capture each page as a single image (GIF, JPEG), as PowerPoint does.

Resorting to these options negates the many benefits of the Web including its ability to quickly search content. Also, it's easy for SMEs who are developing a course and not constantly using the WYSIWYG tool to quickly forget the available features and get confused by the naming structures found in the pulldown menus.

With the dialog box interface, SMEs are always aware of available features that are appropriate for a particular page or task because they have easy, intuitive access to them via function buttons. Course creators have a ready-made framework into which they can place content, producing standard HTML for optimal display on the student's browser. An additional benefit of using a dialog-box-based authoring tool is that developers can paste any HTML, XML, or Java-Script into the template. WBC automates tedious tasks such as linking pages, building indexes, moving pages, and making sure all the links work. This provides the flexibility to use anything that is Web-readable wherever the course creator sees fit. There are a few limitations to this approach. For example, Ready-Go's dialog-box-based input screens are more constrained than WYSIWYG tools. However, I felt that the ease of use and speed of development compensate for this.

#### Standards compliance

Web Course Builder supports the AICC, IMS (XML), and SCORM standards. In addition, it supports all ADA, Section 508, and W3C standards for use with blind readers. WCB is ADL-certified as conformant with SCORM 1.2: SCO Run-time, Metadata, and Content Package.

#### Training and support

Purchase of ReadyGo Web Course Builder includes an online eight-lesson user tutorial, its paper equivalent, and complimentary phone and e-mail support for six months. After the six-month period, support costs \$299 per year. Purchasers also receive access to an extranet site containing the latest software updates, a section on tips and techniques, FAQs, and a selection of additional course graphics and templates to customize their interface.

#### How we developed our tutorial

Once I had armed myself with this basic knowledge of Web Course Builder, and had purchased a copy for the Library, I was ready to get started developing my tutorial covering Connecticut's legislative process. My first task was determining our student audience.

The Connecticut State Library serves a broad cross-section of people including members of the bench and bar, State agency personnel, and the general public. All of these individuals are potential users of our tutorials, in addition to our aides. I quickly realized that the course had to simultaneously serve two ends of the knowledge spectrum. At one end are sophisticated users familiar with major aspects of this process who may yet need to review some finer details. At the other end are individuals who are totally unfamiliar with the subject and who may harbor some skepticism about their elected officials, yet who want to gain a firm understanding of what exactly those officials do every year. Based on this finding, I knew that my lessons had to present information in a "drill down" fashion. I had to be careful not to present too much information at the front end, to avoid overwhelming neophytes, but I also couldn't oversimplify the course content for the advanced users.

My first step in ensuring that I successfully adhered to this drill-down plan was to start with some sheets of graph paper and sticky notes. Each sheet of graph paper represented a chapter in the tutorial and the sticky notes represented a lesson within the chapter that needed to be covered. I found that using this low-tech approach to designing the tutorial allowed me to physically manipulate placement of key topics I needed to cover within each lesson. I could quickly move a topic to another lesson or chapter and visualize its placement. If it wasn't making sense, I could move it someplace else. Once I had the basic layout mapped out in its preliminary form, I enlisted the assistance of our legislative aide, Meghan Quinn. What made Meghan's participation unique at this stage was that she had only a rudimentary understanding of Connecticut's legislative process. She certainly wasn't a subject matter expert but she did have a desire to learn, and she had two existing resources to consult and build from.

If SMEs need to include graphics in a learning tool, they prefer to use a clip art gallery, contract the services of a graphic artist, or use a digital camera to take a picture. Because of this, Ready-Go decided not to include a graphic design tool within the WCB. and instead provided easy methods to import and integrate Webviewable graphics.

#### Figure 3

The home page for a completed course, showing the navigation features and the clean interface that is the result of the Web Course Builder template.



One resource was the traditional 13-lesson tutorial created in Microsoft Word centered on reading and reference assignments, with questions testing knowledge retention directly tied to these readings. Students could answer these questions directly within the Word document or they could print them out and fill the answers in by hand. The other resource was an eight-page HTML outline created using Microsoft FrontPage, covering major steps in the legislative process by summarizing key content from a book entitled *Under the Gold Dome: An Insider's Look at the Connecticut Legislature* by Judge Robert Satter. Both of these resources had their strengths and weaknesses, which I will outline next.

#### Traditional 13-lesson tutorial in Microsoft Word

Strengths:

- Students needed to read certain passages, both from print sources such as *Lawmaking in Connecticut* by Wayne Swanson, and online resources such as the House and Senate Journals, in order to answer test questions.
- Students learned terminology by looking it up and reading about how it is used to define key stages in the legislative process.

#### Weaknesses:

- The instructor had to manually correct the answers to questions, leaving the student with only one opportunity to answer a question before being reviewed. This meant the student couldn't immediately try again, or quickly review the reading material.
- The tutorial was limited to use within the agency and wasn't available to anybody that didn't have access to our LAN.
- The information was static and presented in a linear style (i.e. there is much more to the legislative process than what the lessons cover, and students can't quickly migrate to other resources via navigation bar to reinforce learning)

#### Page outline in HTML

Strengths:

- It covered the subject holistically, giving a bigger picture and conveying an insider's perspective on the legislative process.
- It utilized interactive features such as hyperlinks, video clips, and images.

Weaknesses:

- The content assumed prior familiarity with the legislative process in general by using terminology without reference to its meaning.
- The content didn't accommodate different knowledge levels, and there wasn't any way to test the



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student's retention of the material.

 The interface heavily relied on students reading through all the contents while offering few opportunities to participate other than viewing related links and video clips.

Following our plan, and utilizing ReadyGo's interface, Meghan and I plugged in relevant content and added supporting links and video clips where needed, combining the strengths of both existing resources while avoiding their weaknesses.

#### Conclusion

We think that our resulting online tutorial (http:// www.persuasivetype.com/ReadyGo/index.htm) has a casual tone making it easy to follow, much like having a seasoned politician take you on a personal tour of the inner workings of the Connecticut General Assembly. As students inevitably confront unfamiliar terminology, they have ready access to a glossary and links such as "Tell Me More." Most importantly, we can now reliably test knowledge through the use of quizzes and tests. We found ReadyGo's interface to be so intuitive that it was indeed possible for Meghan to become a SME on Connecticut's legislative process by developing course content, rather than by being the student. I'm already planning what our legislative aide can create and learn next year using ReadyGo's Web Course Builder. 🤁

#### **Author Contact**



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