

# THE **e**LEARNING DEVELOPERS' JOURNAL™

Strategies and Techniques for Designers,  
Developers, and Managers of eLearning

JOURNAL™

## THIS WEEK — DESIGN TECHNIQUES

### First Project: An e-Learning Odyssey

BY JEAN MARRAPODI AND TRACY BYRNES

One of the latest and noisiest buzzwords in training these days is e-Learning. All of the literature would seem to indicate that everyone is doing it, for better or for worse. The reality is that there are three types of people dealing with e-Learning today:

1. Experts who've been following technology since DOS days — they write all the articles.
2. People who talk a good game and outsource it all — they read all the articles to keep up.
3. People like us who fell into this and are finding our way.

Private Healthcare Systems (PHCS) Corporate Learning Services (CLS), like most training departments, consists of a range of experience levels and abilities. When we decided to begin the journey into e-Learning, we pulled together a team of technically experienced people. This project began in June of 2001. The team consisted of:

- Regina, the director of the training department, who had been a pioneer in the world of e-Learning during her days as a Senior Computer Based Training Courseware Developer in the Air Force, but e-Learning technology had grown exponentially since the days of hand-coding every screen.

- Dan, a senior education specialist,

ex-engineer and watercolor artist, who grasps both the technical and graphic aspects of e-Learning with lightning speed.

- Tracy, a courseware developer and one of the authors of the article, who has a knack for picking up software quickly and has a quirky creative streak, formed by spending the wee hours of the evening developing websites or playing guitar in nightclubs.

- Jean M., a senior education specialist and the other author of this article, who has a Masters in Online Instructional Design and former experience in web development and online learning, but has a habit of being overly optimistic that we could make anything work.

*Continued on next page*

*At Private Healthcare Systems (PHCS) Corporate Learning Services we decided to begin the journey into e-Learning. We pulled together a team of technically experienced people — then our troubles started. None of us had ever implemented a web-based e-Learning project from conception to completion. Nor had we ever worked with an authoring tool, a learning management system, or graphic or animation software. Here is what we learned...*

• Jean N., an education specialist who trains all of our soft-skill classes and who has an amazing ability to create visuals that succinctly capture ideas.

• Gordy, a web engineer, who thinks in JavaScript and HTML, foreign languages to most of us, but who had no experience with the training industry.

We were a diverse lot, but we all had one thing in common. We had never implemented a web-based e-Learning project from conception to completion and none of us had ever worked with an authoring tool, a learning management system, graphic or animation software — but we were all up for the adventure of making it happen.

This article attempts to document our foray into the e-Learning world; we will discuss our successes and failures, and most importantly our lessons learned. We hope that in sharing our wisdom, gained in the school of hard knocks, you can avoid making the same mistakes.

## The vision

Several years ago, when PHCS Corporate Learning Services was under different leadership, Regina had a vision for e-Learning. At the time, her idea was considered inconceivable, over-ambitious, and too expensive. When the leadership changed and Regina took over the department, she starting making her vision a reality. She convinced senior management that e-Learning would provide just-in-time training that was available anytime, that took less time away from the job than classroom training, and that would save the company money in the long run.

As we began to experiment with using technology in our training, we were able to demonstrate the efficacy of e-Learning's potential. We successfully launched an accreditation training piece in the form of a web site on our intranet that provided references to our P&Ps and accreditation standards. From it, management saw how easily the employees embraced the use of technology. It was a good time to test the waters with e-Learning, so management signed off and, in essence, we had the ticket to ride — with a financial cap of \$50,000 to spend.

## The battle of the authoring tools

Our initial plan was to check out the current capabilities of e-Learning, make up a wish list of things we wanted our tool to be able to do, research and review authoring tools that met our criteria, select the tool that would best meet our needs and begin designing.

What sounded simple enough at first became an all-out, 12-round battle, ending in a split decision, but eventually, a consensus was reached. Here's how it happened:

**Round 1: Search the internet** — Google shows 364,000 sites about e-Learning. This was way too many to check out. Move on to plan B.

**Round 2: Compare finished products** — It turns out that that there is definitely good e-Learning, and not-so-good e-Learning, but the criteria really have more to do with the instructional design and/or graphic design of the piece than with the authoring tool used. Good to know, but still no closer to choosing the tool.

**Round 3: Consult the professionals** — Listservs, industry magazines and websites all have great info about the available authoring tool options. We learned that Click2Learn, Macromedia and Mentergy are the three big names, but there are quite a few good smaller companies as well.

**Round 4: Download trial versions** — We downloaded about 15 different products, then started playing around with them. After a few hours, our heads were spinning and we had completely lost track of which product did which function.

**Round 5: Document features** — We created two grids. One was for the capabilities of the product. (See Figure 1.) The other was for the product description. (See Figure 2.) This really helped us keep track of what we were seeing.

**Round 6: Identify top contenders** — We noticed there were two pretty distinct categories of tools: easy to learn with less capabilities and tough to learn but with amazing functionality. We considered buying one of each type, one for the short term and one for the long run.

**Round 7: Compare strengths and weaknesses** — We settled on the following tools to investigate further. For the high-end products: ToolBook and Designers Edge. For the lower-end products: DazzlerMax, Lectora and Tactic! We also liked RapidBuilder; a tool designed to do software simulations, recording them in a macro driven fashion. We created another grid. (See Figure 3.)

**Round 8: Show us the demos** — We called in the sales reps to give one hour back-to-back demos. We were left with our heads spinning again. We narrowed our list

Tools	Ease of use 1 - 10	Sound	Animation	Movies	Templates to start with	Styles modification	Timeline editing	Preset exercises	Tracking capabilities for student response	Can you set timing?	Place to add developer notes	Students need viewer/plugin?	Collapsible flow line	Linear or layered?	Publish Web	Publish CD ROM
Tool 1		Y	Y		N	N	N	N		N	N		N	La		
Tool 2		Y	Y	Y	Y	N	Y	N	Y	N?	N	N	Y	Li	Y	Y
Tool 3		Y	Y	Y	Y	Y	?	Y	Y	?	?	N		Li	Y	Y
Tool 4		Y	Y	Y	Y	Y	?	Y	Y	?	N	N	Y	La	Y	Y
Tool 5					Y			Y	Y	Y	Y		Y	Li		

FIGURE 1 Sample grid of authoring tool capabilities.

to Lectora by Trivantis and ToolBook by Click2Learn as the two best options for what we were looking for.

**Round 9: Bring in the team?** — We had Lectora and ToolBook representatives give 30 minute demonstrations to the entire team. This just confused matters, since the team didn't know what to look for and could only judge based on the look of the product and the skill of the presenter. This was not very helpful.

**Round 10: Try a hands-on trial** — Tracy joined the team and experimented with each product to build a quick course. She came to the same conclusions as the rest of the team; both products were good and had strengths in different areas — it just depended on what we were looking for.

**Round 11: Kick the tires** — Dan and Jean were each assigned a tool and given a topic, a list of criteria, and two days to create a quick presentation using the same materials. This allowed the team to compare the tools side-by-side without the pressure of salespeople. It was at this meeting that we made our final decision.

**Round 12: And the winner is...** In the end, we went with ToolBook because of the variety of objects available. We realized that this product would be more complex to learn, but we also thought it had more capabilities.

We discovered along the way that all of the tools require stand-alone graphics, sound and video editing software to add in the bells and whistles of interactivity. So we added Cakewalk for sound and Flash for animation to our purchase list.

Fortunately, we already had Paint Shop Pro

on our systems for screen captures, and it had the graphics editing capabilities we would need.

We jumped through the necessary hoops of the purchasing department, placed our orders, and began scheduling the training for the New Year.

### Lessons learned

- Sales Reps know all of the features and benefits of their products but are rarely product users, and are often only talking from marketing marketing/sales scripts.
- In comparing apples and oranges, be sure to work with the "fruit salad" so you can see the program's capabilities, not just its features.
- Multiple reviews in the same day make your head spin.

### Training to the rescue!

After buying the software, installing it on our system, and playing with it for about a week, we got frustrated — fast! We knew about all the functionality that it offered, but couldn't figure out how to get at it — at least, not the way we were supposed to. And then, like a knight in shining armor, came Training!

Training is one of the best times of your e-Learning life. Everything works like it's supposed to, it's okay (even encouraged) to make mistakes, and there's someone there to guide you every step of the way. Squeeze as much information out of the instructor as you can.

If the training of your team members is staggered, make use of it. Since Tracy

went to training last and the others had already started projects, she was able to ask questions about specific issues that we were encountering. Every day during the breaks she was on the phone with us getting new questions to ask and relaying the instructor's answers.

After training had ended, we still needed some occasional support. We had a couple of options for this. First of all, we made use of the instructors after the class was over. How many times have you heard an instructor say, "If you have any questions or problems, feel free to call me"? How many calls do you think they really get? My guess is not many. So we took them up on the offer! We also called our internal Help Desk service, although it was not very impressive, so being able to contact the instructor was all the more valuable. And we continued using online support groups like listservs and knowledge bases. We often discovered useful information that we didn't even know we would need by subscribing to a good listserv.

There are two things that we would recommend watching out for when planning your training.

- The first is mistaking software tool training for instructional design training. Knowing how to use a hammer doesn't equal knowing how to build a house. If your designers do not have a solid background in instructional design and know how to apply it effectively to online media, send them to a good course on instructional design for web-based training before they ever touch the software. (There are plenty of public courses to choose from.) There's

Tools	Ease of use 1 - 10	Metaphor	Template-based	WYSIWYG	Content reusability	Richness of instruction	Use of Standards AICC/SCORM	Managing content changes	Write once, publish many	Team development tool	Minimal system requirements	Needs plug-in?	Value	Testing capabilities	Object-oriented	Drag and drop	Product support
Tool 1	4	Icon flowchart	Can create	No	Yes		Yes	Easy	No	Yes		Yes	\$1699	No	Yes	Yes	Yes
Tool 2	2	Task-based	Yes, only 1	Yes	Yes		Yes	Easy	Yes	No		No	\$2495	Yes	Yes	Yes	30 days free
Tool 3	5	Object-oriented	Yes	Yes	Yes		Yes	Easy	Yes	No		No	\$2999	Yes	Yes	Yes	Yes
Tool 4	4	Icon flowchart	Yes	No	Yes		Yes	Easy	Yes	Yes		No		Yes	Yes	Yes	Yes, 1 year
Tool 5	8	Page	Yes	Yes	Yes		Yes	Easy	Yes	No		Yes		Yes	No	Yes	60 days free

FIGURE 2 Sample grid of authoring tool descriptions (criteria from Brandon Hall)

# DESIGN *1* techniques

Tools	Strengths	Weaknesses	Tech Support	Pricing	Training	Totals for 5	Scoring	
<b>ToolBook Instructor</b> (Click2learn)	<ul style="list-style-type: none"> <li>• Stencil templates like Visio</li> <li>• Pick and choose elements and drag &amp; drop</li> <li>• Preprogrammed objects</li> <li>• Intuitive and relatively easy to use.</li> </ul>	<ul style="list-style-type: none"> <li>• Unique code</li> </ul>	Tech support: \$895 per yr	\$2,495 per License 5=\$12,475	\$1,895 for 5 day training course. 5=\$9,475	\$21,950 "bundled price" \$3995x5= \$19,975	25.5 (w/out software sim -3 = 22.5)	
<b>Lectora</b> (Trivantis)	<ul style="list-style-type: none"> <li>• Drag and drop objects</li> <li>• Ipix supported</li> <li>• Sidebar flowchart/wysiwyg</li> <li>• Master objects on all slides like PowerPoint templates</li> <li>• Publisher points out errors</li> <li>• 7 test types</li> <li>• PDA capable</li> </ul>	<ul style="list-style-type: none"> <li>• New player in market</li> </ul>	Included	\$1,795 buy 4 get 5th free 5=\$7,180 (4+1 free) \$3,380 per bundle	\$395 per student Webex \$2,000/day on site class	\$13,520 bundle includes license, upgrade pkg, support subscription, basic training	22	
<b>Tactic!</b> (BGW Multimedia)	<ul style="list-style-type: none"> <li>• Fill-in-the blank form type</li> <li>• Users type in content and program lays it out</li> <li>• Testing capabilities</li> <li>• Instructional design driven</li> <li>• Media manager</li> <li>• Shuffles choices</li> </ul>	<ul style="list-style-type: none"> <li>• Smiley faces</li> <li>• Rep turnover!</li> </ul>	\$600 per license	\$1,495 per license 5=\$7,475	\$665 per day for up to 5 students, \$130 per day each additional student	\$8,140 w/tech \$11,140	22.5	
<b>DazzlerMax</b> (Maxit)	<ul style="list-style-type: none"> <li>• Button driven, much like Microsoft Office products</li> <li>• Screen can be resized to have users work in the actual application rather than simulation</li> <li>• Task/object metaphor</li> <li>• Reusable content library</li> </ul>		1 year included	1 included in training pkg. \$800 per additional seat \$500 per CBT license additional 4=\$3,200	\$5,500 per 2 day onsite training for 5 students	\$8,700	21	
<b>Rapidbuilder</b> (XStream Software)	<ul style="list-style-type: none"> <li>• Records macros of the tasks to follow</li> <li>• Nothing needs to be programmed.</li> <li>• Additional directions are added in.</li> <li>• Timeline metaphor so precise control</li> </ul>		Tech Support: \$499 per yr 2 yr per \$449 3 yr per \$399 3=\$1,497 5=\$2,495	\$2,499 per License 3=\$7,497 5=\$12,495	\$595 per student for a 2 day program. On site min. \$2,499 same cost as 4.2 students \$899 per 3 day min \$3,799	3=\$9,996 w/2 day w/tech= \$11,493 5=\$14,994 w/tech \$17,489		
<b>Designer's Edge</b> (Mentergy) Enterprise Version	<ul style="list-style-type: none"> <li>• Ability to create</li> <li>• Flowcharts</li> <li>• Storyboards</li> <li>• Needs assessments</li> <li>• Checklists in categories</li> <li>• Lesson plan output</li> <li>• ASP documentation</li> </ul>			5=\$2,846.25 13=\$7,010.25	\$18,975 for enterprise version (5) \$46,735 for 13 Plus \$3,600 installation	\$1,195 per 3 day (per student) 5= \$5,975 13=\$15,535 \$1,500 per 5 day 5=\$7,500 13=\$19,500	\$31,396.25 for 5	
<b>Designer's Edge</b> (Mentergy) Stand Alone	<ul style="list-style-type: none"> <li>• Ability to create</li> <li>• Flowcharts</li> <li>• Storyboards</li> <li>• Needs assessments</li> <li>• Checklists in categories</li> <li>• Lesson plan output</li> <li>• ASP documentation</li> </ul>			5=\$2,148.94 13=\$53,431.98	5=\$14,326 13= \$35,626.50	\$1,195 per 3 day (per student) 5= \$5,975 13=\$15,535 \$1,500 per 5 day 5=\$7,500 13=\$19,500	\$22,449.94 for 5	

**FIGURE 3** Authoring tools finalists. Note: This information was assembled in the fall of 2001 at the time the project began. Prices and features of these products may have changed. Please check the product web sites for any new information. The comments about the products are the authors' opinions based upon the research they did.

nothing worse than a course designed with all the bells and whistles but which has useless or poorly structured content.

- The second thing to watch out for is booking all your training back to back. After the third or fourth class, our heads were

spinning (again) and all the tools started blurring together into one big e-Learning daze. Space the classes out, learning one or two key tools up front, then adding another tool about a month later, or whenever you are getting ready to use the tool

for the first time.

#### **Lessons learned**

- Use every available opportunity and resource to gather information, both during and after training.

## THE LABYRINTH OF ACRONYMS

As one begins to delve into the world of e-Learning, the first noticeable surprise is the foreign language spoken by all of those involved. Much of the language is abbreviated into acronyms: LMS, SCORM, AICC, LCMS and in many cases the users have no idea what the terms mean either, and expect that you do since everyone uses them. We have provided a handy dandy decoder bar to assist you in your journey.

### **Software programs**

There are number of similar types of programs out there, and it's useful for you to know the difference between them.

**LMS** (Learning Management System) — Software that tracks user profiles and scores.

**LCMS** (Learning Content Management System) — Software that tracks user profiles, scores and learning objects.

**HRIS** (Human Resource Information System) — Software that tracks employee profiles and other human resource information. More geared towards benefits, payroll, and other HR functions, although some claim to have LMS capabilities as well.

**ERP** (Enterprise Resource Planning) — Software that tracks and integrates company-wide processes, materials, and resources. HRIS may be one module of this large, multi-functional program.

**CMS** (Content Management System) — Software that tracks individual chunks of information so they can be easily indexed, accessed, and reused.

### **Standards**

When railroads first started to be built, each railroad company would use their own size tracks, so that other companies couldn't use them. Then standards were put in place to ensure that all the tracks were the same size, so any train could use any track in the country. The same thing is happening with e-Learning today. Standards such as SCORM and AICC ensure that all e-Learning and LMS programs create information that is interchangeable with other programs, so information can be shared, regardless of what company created the program. These standards cover such topics as learning object metadata, student profiles, course sequencing, computer managed instruction, competency definitions, localization, and content packaging.

**SCORM** (Shareable Courseware Object Reference Model) — A set of e-Learning standard specifications created for the military by the US Federal government Advanced Distributed Learning (ADL) initiative.

**AICC** (Aviation Industry CBT Committee) — An organization that established a set of e-Learning standards for the aviation industry, although those standards are now being applied elsewhere.

**IEEE LTSC** (Institute of Electrical and Electronics Engineers Learning Technology Standards Committee) — One of the largest organizations creating standards for e-Learning.

**IMS** (Instructional Management System Global Learning Consortium) — A consortium of industry professionals who are working to develop e-Learning standards.

### **Software programming**

Programmers often seem to speak a whole different language from the rest of us. Here are a few of the terms you may commonly hear, and some very simplified explanations.

**HTML** (Hypertext Markup Language) — Language used to create web pages, consisting of mainly text and tags that identify various text and screen properties.

**DHTML** (Dynamic Hypertext Markup Language) — Scripts that allow a web page to change after it's been downloaded to a user's computer. An example of this is simple rollovers, where one part of a screen changes when you put your cursor over it.

**CGI** (Common Gateway Interface) — A method of running scripts that allows users to input information and perform tasks, such as chat rooms, message boards, and handling of forms.

**ASP** (Active Server Page) — Microsoft technology that is similar to CGI.

**WYSIWYG** (What You See Is What You Get) — Refers to programs that have a graphical interface. These programs allow you to see page elements and layouts as you build them; and they automatically write the code for you in the background, rather than requiring you to write the code yourself.

### **Other terms you might run into**

**Storyboard** — A visual layout of the contents of each page. May include text, graphics, questions, and navigational elements.

**Flowchart** — A visual layout of the entire course, showing the structure of the course and how the pages are related.

**Learning Objects** — Chunks of digital information, such as text, graphics, sound, or video, that can be mixed and matched to create different learning modules.

**Authoring Tool** — Software program that enables you to create e-Learning. Although you can use web development software to create simple e-Learning, authoring tools offer more functionality, such as interactivity, quizzes, multimedia integration, and more.

**Listserv** — Email list that allows people with similar interests to discuss topics by email. Some good e-Learning listservs can be found at Yahoo groups, including TRDEV, Brandonhall-AT, elearningleaders, and evaluatinglearners.

- Learn good web-based instructional design before attending software training.
- Space out the training classes as much as possible to prevent training overload.

## Bearing the e-Learning standard!

So here we are with a beautiful new authoring tool in front of us and we've been trained how to use it — now what? Before we went galloping away in all sorts of creative directions, Regina had one more requirement of us: style guides! Without them, we could have spent more time deciding what colors we wanted to use than creating the content. Tracy, having developed the department style guides for print courseware, was the natural choice for leading this part of the project, but there was only one problem. Tracy worked in a branch office and couldn't get training until two months after everyone else. Luckily, she had Dan on her team, who had gone through the training and who had a good knowledge of how the software worked.

So, we started out searching through tons of research to figure out how other companies were working and what, if any,

best practices were already out there. One thing we tried to keep in mind was that many e-Learning design principles are rooted in basic instructional design principles, so many of the topics were similar. Finally, after much trial and error, we were able to come up with a style guide for creating e-Courseware. Here are some of the items we included in our style guide:

**Interactivity** — What is it, why is it so important, and how do we create it? This is perhaps the most important part of e-Learning, so we needed to make sure everyone was very clear on what interactivity is — and on what it isn't.

**Sequencing** — Which comes first, the question or the answer? It's not always what you might think.

**Flowcharting** — We created a Visio template for flowcharting high-level course designs.

**Screen Standards** — We created a Toolbook template containing standard colors, page layouts, and navigational objects.

**Graphics** — What kind of graphics to use and when?

**Testing** — When to test and what to

look for?

**Screen Inventory** — How do you document what you've created?

**Publishing** — Where to save it and how?

When creating a style guide, it's important to remember that people will not be using it in a perfect world. They might be under time constraints, working with unfamiliar software, or not very experienced with instructional design. One of the more contentious areas for us was around storyboarding. Tracy had been trained to storyboard every page, but Dan argued that logistically, that just didn't seem practical, especially since there isn't a hand-off between designer and developer — we were doing it all ourselves. There are pros and cons to storyboarding. If there are hand-offs in the process or if your developers aren't experienced, a detailed plan may save rework, but that kind of planning takes a lot of time. We decided to try it with less planning, so we agreed to create flowcharts to get the high level plan, and then create the pages right in Toolbook. For logging purposes, we also created a screen inventory to fill out for each page,

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in the case of a corrupted or lost file.

Another key thing to keep in mind is that these style guides will and should change as the department gets more experience with e-Learning, so don't agonize about getting every last detail mapped out to perfection.

#### Lessons learned

- Get the training before trying to work with the program; you'll save yourself a lot

of headaches and rework.

- Create standards around how the programs should look and function before developing any actual courses, but...
- Be ready and willing to change the standards after you've created a few courses. You'll have a much better understanding of your e-Learning needs and capabilities after working with it for a while.

#### Keeping track — hurdling the great LMS connection, or non-connection

When we began the initial process of selecting an authoring tool, we constantly saw information stating that the tool was compatible with different Learning Management System (LMS) systems, so we figured we'd better determine if we needed one of those. We knew that the tools we were looking at had the capabili-

### AL'S LMS RECOMMENDATIONS AND QUESTIONS

There are several ways for you to find out your needs with respect to a LMS. The most important aspect is that you define YOUR real needs, as opposed to the needs of the LMS salesperson you are talking to. If you have a few months to run a pilot program to define your needs, you could sign up with several LMSs letting them host your content. Be clear that this is a pilot program so you can identify YOUR needs.

Obtain or create some of your own courses, and be sure to include some test questions in these courses. Without test questions that you can track, you will miss out on understanding some of your important issues. Gather together a sample group of students from several departments, or new employees. As much as possible, find or create a course that has material that is new to these students. For example, post a course on a new procedure (technical or administrative), and test the students on it.

During the entire process, here are some of the issues you should keep an eye on to determine if these will become high priority or low priority requirements for you:

1. Do you need to pre-enroll students in a course? (Or can students enroll themselves?)
2. Do you need to enroll students in a series of courses where they must complete one course before proceeding to the next?
3. Do you need to track how each student performed on the test, or do you only need to track that they have been through the course material?
4. Is your interest more in the management of content (e.g. What courses were taken by what people?) or in tracking the students (e.g. Did student x complete these 3 courses?).
5. Can the course authors get feedback? (For example, can they see specifically how each student answered each question? This may be very important so that you can catch poorly designed courses or errors in questions.)
6. Do you need to issue certificates?
7. Do employee results need to be fed into an HR/ERP system?
8. How easy is it to load your own courseware into the LMS? (Do you need to re-author it? Can you only use courses the LMS/CLMS provides? Will you be tied down to an LMS-provided authoring tool?)
9. If you decide to change LMSs, how difficult will it be to move your courseware over?
10. How well does the LMS provider support you? Unfortunately, regardless of who they are, they will give you

excellent support during the trial period...after that, some will give great support, some will not.

11. What kind of statistics do you need on each student? (For example, time on course, number of times pages are visited, score for test, score for course, score for individual questions.)

12. Do you need to protect the content so that only authorized students can access it?

13. How quickly are pages delivered to the student's desktop (this may tilt your decision about hosting the LMS in-house)?

14. Are you going to be training using primarily generic Commercial Off-The-Shelf (COTS) courseware, or do you envision creating your own training? (Think about how many COTS PowerPoint presentations you are using currently before answering this question.)

15. What is your budget? Can you afford per student/per course/per month fees? That is, can you pay for a system up-front, or are you better off amortizing cost through service contracts (capital expenditures versus monthly expenses)?

16. Can you get by with a simpler assessment engine such as Question Mark Perception or ReadyGo SST? That is, can your solution be department-level or course-based instead of being an enterprise-wide solution? (A low-entry point solution might help you answer many of the other questions prior to investing large amounts of effort and time with a large system.)

17. Do you have multi-language needs?

18. Do you want to stream audio or video?

19. Do you plan to post PowerPoint slides and use them as "courses"?

20. Do you need live chat rooms, whiteboards, synchronous delivery, bulletin boards, or separate e-mail services?

21. Will students all have the same browser to access the courses? This may be an issue because some courses/LMSs may require additional software on each student's computer.

22. Do you have restrictions (from IT) that prevent students from installing players (e.g. Centra, Authorware, etc.)?

23. Do you have to verify the identity of each student carefully? (If so, e-Learning might not be the right solution for you.)

24. What kind of assurances (monetary) will the LMS vendor give you that they will provide you with the support you need?

— Al Moser, VP Engineering, ReadyGo, Inc.

ties of creating scored tests, and we wanted to be able to capture and track that data, which seemed to mean looking into an LMS.

Before we determined which authoring tool to buy, we initially met with the PHCS coordinator and the project consultant for the newly-purchased-and-in-the-process-of-installation-and-implementation HRIS system, Lawson Software. It appeared that the system had the ability to do all of the things we wanted, and the folks involved insisted that all we would need to do was bring the data into a database and it could be imported easily into Lawson Software. It

also appeared that any of the tools we were considering could output that type of data, so we moved this item to the back burner until the tool was selected.

Appearances can be deceiving.

Fast forward to early this spring when we attempted to figure out how to link up the prototype courses we were developing to the Lawson Software HRIS system. We knew that ToolBook could output something because you checked off all kinds of boxes as you were publishing your course to enable it to do that. Our problem was that we couldn't figure out what it was outputting or where it was putting it.

We handed as much technical information as we had to the technical person working with Lawson Software, but unfortunately he was knee deep in higher priority work, and it remained untouched.

In searching the product knowledgebase for ToolBook on the topic, we discovered what appeared to be coding gobbledygook, which we passed along to one of Gordy's peers, hoping that he could make heads or tails of it. He could. He told us that we needed to parse variables passed through a QueryString that is generated from ToolBook into a VBScript server file that would receive and format the data to a CSV file, as required by Lawson Software. (It didn't make much sense to us either.)

Hampered by ToolBook's proprietary code and scripting language, an HRIS system that we're trying to use as an LMS, and developers with little to no programming knowledge, we are still creating workarounds that will allow us to score and track learner quizzes. This deceptively simple sounding task has turned into a logistical nightmare.

Many of these problems would have been eliminated if we had purchased ToolBook's LMS system, Aspen. In a sense we bought the cart before we bought the horse. Life would have been so much simpler if we had purchased a tracking system with the authoring tool. Better still, we really would have had a heads up if we had known what to ask during the search.

Al Moser of ReadyGo recently posted a great list of LMS questions on TRDEV, a Yahoo Groups listserv. We quote them with permission in the sidebar. (And desperately wish we had seen them a year ago.)

### **Lessons learned**

- Understand the difference between an LMS, ERP, and HRIS system and the capabilities of each.
- Identify before you choose an LMS and authoring tool what information you need to capture for your training records.
- Buy the LMS and authoring tool at the same time to ensure they work together.

### **Development teams — three-headed beasts are better than one**

Developers are often solitary people. They like to take a project, crawl into a cave for a few days (weeks, months) to work on it and emerge with a final draft. Sure they might talk to subject matter experts (SMEs) and sponsors occasionally, but for the most part, all the work is done on their own. This is not the best way to



*These Workshops can be Taken Independently or as a Series*

## **Developing Your Organizational Strategy for e-Learning**

**October 1 & 2, 2002**

The goal of this workshop is to help participants prepare a strategy for justifying, designing, developing, deploying, and evaluating e-Learning throughout a corporation or institution.

## **Developing Your Technology Strategy for e-Learning**

**October 3 & 4, 2002**

The goal of this workshop is to help participants prepare a strategy for identifying, specifying, evaluating, and acquiring the tools and technology needed to broadly implement e-Learning.

### **Who Should Attend These Workshops?**

- Senior e-Learning Project Managers
  - Training Managers
  - Training Directors
- Human Resource Managers
- Chief Information Officers
- Chief Learning Officers

### **Workshop Authors & Instructors**

**Bill & Kit Horton**, *William Horton Consulting, Inc.*



Bill and Kit are internationally recognized experts on the productive and appropriate use of new media and communications technologies. Bill is the author of numerous books including *Leading e-Learning* and *Using e-Learning*.

start developing e-Learning. Jean N., the developer of our first course, found herself automatically mimicking the linear courses she'd taken in the past. She knew that approach was B-O-R-I-N-G, so she changed her strategy. E-Learning isn't just about content. The way you present the content is equally important. We decided to assign e-Learning projects to three-person development teams. It can sometimes be frustrating working in teams, but in the long run, they produce better work than any one of us can do on our own.

The teams were usually made up of a lead developer, a trainer or writer with little e-Learning background but a lot of subject knowledge or creativity, and a manager. Why include a non-e-Learning team member on an e-Learning team? In some cases it was because of subject matter knowledge, but in many cases, these team members brought a fresh perspective to the project and were able to come up with a new approach towards the material.

When working with development teams, there are two ways you can go about it: single-handed or hand-off. Single-handed is where a single person is responsible for the bulk of the development and the other team members help with planning, brainstorming and problem solving. Hand-off is where each team member is responsible for a different stage of the development; for instance, one person writes the content, and then hands it off to another who programs it into the software, while a third creates all the graphics.

There are advantages to both methods of teamwork, and we ultimately decided to go with the former option: single-handed development. This freed up the other team members to work on additional projects, and ensured that the program would be consistent. It also allowed the main developer to gain experience in all aspects of the development process. Knowing what our roles were and how the team was expected to work together really helped manage the development process.

#### **Lessons learned**

- Three heads are better than one.
- Mix up your teams to leverage everyone's expertise.
- Clarify your team roles at the beginning of the project.

#### **Partners: Marketing, IT, Senior Staff, and Operations (bring cookies!)**

As word began to get around that CLS

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**Developers are often solitary people. They like to crawl into a cave for a few days to work on it and emerge with a final draft. Sure, they might talk to subject matter experts (SMEs) and sponsors occasionally, but for the most part, all the work is done on their own. This is not the best way to start developing e-Learning.**

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was going to be developing courses online, e-Courseware was named an official corporate-wide initiative. As little as we knew about e-Learning development, our partners knew less, and in some cases had distorted images and fears. We had four main areas to consider: Senior Staff, IT, Marketing, and Operations.

- Senior Staff began talking it up and recommending that many of our training solutions were well suited to e-Learning. We helped them to understand that it was not going to be the ONLY solution, but one of a palette of options.

- Our IT department expressed concerns about bandwidth constraints and volume storage issues. We reassured them of Gordy's involvement in the project, which satisfied them.

- Marketing heard through the grapevine that we were developing material that would live on the corporate intranet and immediately set up a meeting to discuss our corporate image. We showed them our well-developed standards guide and some of the capabilities of the tool, and they seemed impressed by the potential of e-Courseware, which at this point was the name we'd adopted for our e-Learning. We also showed them how we had taken pains to incorporate much of the corporate image into our introductory materials. They were thrilled by the professionalism.

The other partners we had to worry about were in Operations, mainly the project sponsors and subject matter experts. For almost every project we were working

on, there was a sponsor and/or SME that either:

- Knew nothing about e-Learning and didn't want to know. They were intimidated by, or downright hostile, towards the idea of anything but classroom training. Our challenge was illustrating the advantages that e-Learning offered.

- Knew nothing about e-Learning, but loved the idea and wanted all of their training to be done online, whether it was appropriate or not. Our challenge was reeling them in and illustrating the limitations of e-Learning.

With both types of responses, it was important to explain the advantages and limitations of e-Learning as well as the capabilities of the development staff, the software, and the project constraints.

#### **Lessons learned**

- Utilize indirect public relations to leak the news of the rollout, but make sure the proper stakeholders are involved up front.
- Be prepared to be constantly educating the rest of your organization about e-Learning.

#### **Testing, 1-2-3... 4-5-6-7-8-9...**

As we began developing our courses we discovered that what we had learned in our training classes didn't work exactly like we expected. We knew we were ABLE to do some things according to the marketing literature that sold us the products, but getting the tool to do them was another thing. We knew the learning curve would be steep, but didn't expect mountain climbing since we were so far into the journey. We also really wish someone had told us to expect problems along the way. "But I know this worked well in training!" was a common cry heard along the climb to success.

All sorts of issues popped up that we never expected. Here are a few examples:

- The course looked beautiful, until we published it to the web and all the formatting changed.
- A known bug in the software demanded that we save often and with a different name each time, creating dozens of versions, to avoid corrupting the file.

- Graphics that looked great during the development suddenly disappeared when published to the web because a small step had been omitted while importing the graphics — all 64 pages of them!

Once we got something to work on the developers' systems, we published it to a test server and did a show and tell for the team. Simultaneously we sent out a link to


several subject matter experts for their initial opinions. This usually worked fine, until we had a user with a Windows 95 system and the e-Learning gave her system a heart attack. When we had initially investigated system requirements, all of the literature told us that Internet Explorer 5.5 should not present any problems, and we were using IE5.5 system-wide. "SHOULD not" is different from "WILL not!" So we went back to the drawing board and tested again. And again. And again. And finally worked it out.

In addition to testing the software, we also made sure we conducted User Testing. We did this by having someone with no exposure to the course walk through it and talk about what they were seeing and doing. User testing will help catch content and navigational problems that might otherwise get missed. One of our key discoveries during Jean N.'s first course was that we didn't have enough directions in our screens. We needed to help users find where to point and click so they could enjoy the rich interactivity without feeling confused.

### Lessons learned

- Save often.
- Test early and often.
- Expect problems and allow time for the fixes.

### Conclusions

E-Learning is a discovery process both for the learner and the developer. In many ways, it's a paradigm shift for training. There are numerous factors to consider, and mistakes to be made along the way. We encourage you to allow for more time than you anticipate, and utilize all of the resources you can find to help along the way. In an evolving industry, change is part of the process, so expect and embrace it. In the end, it's all worth it, but at times you must affirm that there really is a light, and there really is an end to the tunnel. We're still not experts, but we're definitely on our way. We hope that our journey through e-Learning will help you with yours. Good Luck! 

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