

Selecting an Online Authoring System

Web-based authoring tools can add a new level of collaboration to online learning. But unless you choose carefully, it's easy to end up with more than trainees can use or course developers can work with.

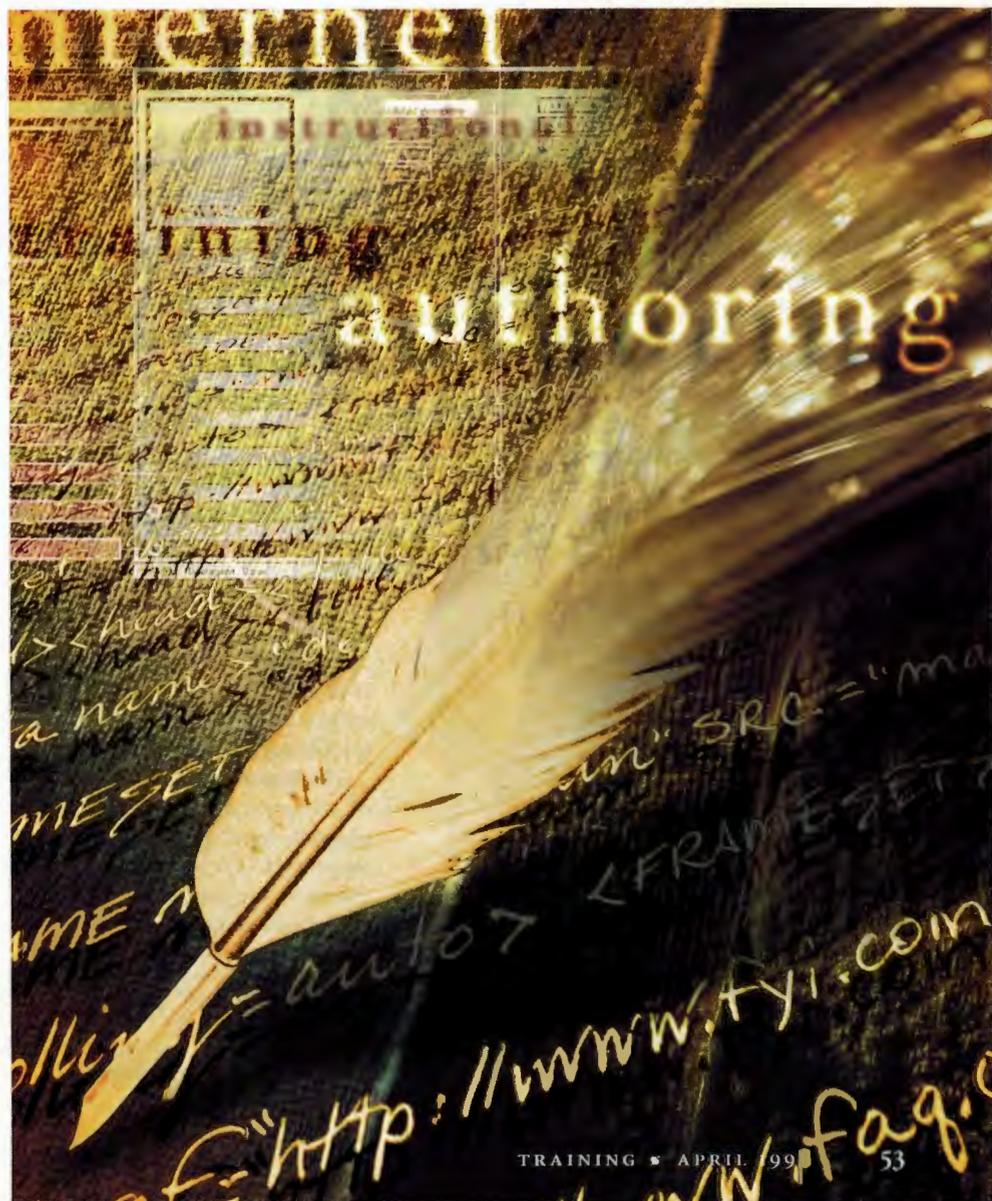
BY VICKY PHILLIPS

If you run a training program that uses instructor-led or computer-based training (CBT) offerings, you probably wonder if some of your courses might not be better deployed using the power of the Internet or your company's intranet. You're not alone. All over the world, companies are trying to figure out whether, when and how to use Web-based training. Part of the puzzle involves deciding which existing courses, if any, to convert to WBT.

Looking to cash in on this shift are a host of hot new course-authoring products and distance-delivery systems that promise to electrify your training program. And it's not just start-ups that are eyeing this market.

VICKY PHILLIPS (*lifelong@together.net*) is CEO of Lifelong Learning, a Waterbury, VT, consulting firm, and co-author of *Best Distance Learning Graduate Schools: Earn Your Degree Without Leaving Home* (Princeton Review). Opinions expressed in this article are the author's and do not represent product endorsements by TRAINING.

Illustration by Alicia Buelow



10 Leading Online Course Development and Delivery Systems

1. AUTHORWARE 4.0 SUITE

Macromedia
www.macromedia.com
(800) 457-1774

Major Features: CBT benchmark tool; CD-ROM/Internet hybrids; content easily exportable to other systems; shockwave for the delivery of streaming video and multimedia; no built-in collaborative features; course administration only through Pathway add-on

Learning Curve: Medium-High
Programming: Object-oriented authoring by icons in a flow-chart; Director uses Lingo programming with a steep learning curve

Development: Windows, Macintosh

Deployment: Windows 3.1/95/NT/3.5.1/4.0; Macintosh 7.5.1 or higher; Pathway runs on Windows only

Cost: \$1,999 Authorware; \$2,999 for Suite that includes Director (animation), Pathway (course administration), and supporting programs

2. DIGITALTRAINER 4.1

MicroMedium
www.micromedium.com
(800) 561-2098

Major Features: Creation of simple e-books (electronic tutorial books) for delivery over the Internet or via e-mail; familiar cardlike interface facilitates creation of simple tutorials; video streaming support; limited options for custom/animated content; no collaborative features, except built-in e-mail

Learning Curve: Low

Programming: Visual floating toolbar authoring



Companies like Macromedia, Allen Communication and Asymetrix have developed Net-enabled versions of an older generation of powerhouse multimedia authoring systems such as Authorware, Quest, Toolbook and IconAuthor. Many training departments are now using these Net-enabled editions with great success.

But while trainers may be sold on the idea of WBT as a part of their future instructional mix, confusion remains as to the best way to get a course online and operational. The question: Which WBT product fits your instructional needs and technology infrastructure at a price and learning curve that your training department can honestly afford?

Solitude or Collaboration?

The buzzword that defines online learning today is "collaboration." The older generation of CBT authoring systems—programs like ToolBook and Authorware—were based on the assumption that learning would occur in a state of solitary confinement. The learner would sit alone at his or her PC, clicking through instructional screens, getting automated feedback until the program detected an acceptable level of competence. With CBT, interaction occurred primarily on one level: between learner and content.

The Internet breaks the sentence of solitary confinement because it supports more levels of interaction. Hypertext (HTML) and Java, the dynamic languages of the World Wide Web, allow learners to experi-

ence instruction on three levels: 1) between learner and content (taking a server-graded pop quiz online); 2) between learner and instructor (e-mailing or chatting in real-time with the instructor for special help); and 3) among other learners (having access to electronic bulletin boards where groups gather to discuss issues pertaining to the course).

The new generation of authoring and delivery systems—Symposium, TopClass and LearningSpace, to name just three of several contenders—allow instructors to build richly interactive classrooms.* TopClass, for example, supports not only an HTML-based authoring system, but built-in asynchronous message boards where classmates can share ideas about course issues and team projects. Symposium is an instructor-led collaborative system that supports real-time audio chat in an electronic classroom environment as well as real-time application-sharing and asynchronous threaded discussion boards. Symposium also allows learners to revert back to stand-alone CBT exercises and tutorials after live class sessions are completed.

But the amount of collaboration that an online system allows should not be the deciding factor in choosing a system. When learning involves the mastery of concrete tasks or principles, collaboration may just be another razzle-dazzle feature that gets in the way of the instructional process. After all, the "solitary con-

*Some other notable players in the "online classroom" business include DataBeam Corp. of Lexington, KY (www.databeam.com), Interactive Learning International Corp. (ILINK) of Troy, NY (www.ilinc.com), and Avalon Information Technologies of Brampton, Ontario (www.atlantis.com/avalon).



finement" model I just described is also known as self-paced, individualized learning.

How do you know which online system best suits your needs? What should you be looking for in a system? High-powered video potential? A collaborative learning structure? The golden rule: The system you select should be capable of delivering the kind of instruction that best suits your educational needs at a price your company can afford.

Step 1: Assess In-House Development Capabilities

Despite marketing cries that this-or-that authoring system requires "no programming skills," all higher-level programs require some advanced abilities to write and/or alter code in order to tap their full instructional potential. If you intend to rely primarily on subject matter experts rather than instructional design and programming teams to develop your WBT, look for authoring systems that have low learning curves. Either that, or prepare to budget for extensive training in these areas to bring your SMEs up to speed.

Keep in mind, too, the more power a system promises for building custom applications that support "fat media," like video and animation, the more programming and design skills your course development team must possess. Consider carefully how much time you want your course developers to spend mastering an authoring system, as opposed to developing and delivering courses.

• **Quick-Start Options.** Several systems stand out as "quick start" possibilities for SMEs with limited programming or CBT instructional design knowledge. Digital Trainer is

the quickest system to master. If you seek to author simple, tutorial-style courses, and you want your course developers isolated from the advanced flowcharting and icon-based methods of course development used in more sophisticated design systems like Authorware and IBT author, DigitalTrainer is a good first-level authoring choice. A simple toolbar option makes developing auto-tutorials as easy as working within a drag-and-drop desktop publishing program.

Two other first-rate programs that enjoy much more power than DigitalTrainer for custom design, yet can be mastered at the entry level with a week or so of dedicated practice, are Toolbook and QuestNet+. QuestNet+, a Windows-based development tool, features floating toolbar WYSIWYG visual authoring. You can move the toolbar while authoring—put it in a window and select tools from the palette. For authors who know C programming, QuestNet+ allows for the extended development of courses that support advanced animation and visual effects.

Toolbook is less powerful than QuestNet+, but remains an excellent all-around choice for SMEs because it features an easy-to-understand book metaphor and comes with course templates and "widgets" coding shortcuts that allow an author to spin a logo, for instance, or animate an object without writing original code.

TopClass, selected by *PC Week* as the No. 1, all-around authoring system in 1997, also insulates SMEs from flowcharting and scripting. One of the first systems designed specifically to deliver training using the collaborative potential of the Web, TopClass lets stand-up in-

Development: Windows
3.1/95/NT

Deployment:
Windows 3.1/95/NT

Cost: \$279.99 standard edition;
\$975.99 corporate edition;
\$395.99 performance pack

3. IBTAUTHOR

Docent Software
www.docent.com
(650) 813-6200

Major Features: CD-ROM and WBT deployment; familiar frame-style graphical interface; auto-graduation of learners; built-in e-mail note capacity between learners and instructor; IBTreporter for course management and student reports

Learning Curve: Medium

Programming: Drag and drop authoring in HTML editor via IBToutliner

Development:

Windows 95/NT;
Mac support planned

Deployment: Windows 95/NT
Server 32MB or more;

Mac, Unix support planned

Cost: \$995 standard simple version; up to \$20,000 for multiple network packages for multiple authors, users and servers

4. ICONAUTHOR NET EDITION

Asymetrix Corp. (formerly supplied by Aimtech Corp.)
www.asymetrix.com
(800) 448-6543

Major Features: Benchmark CBT tool; hybrid Internet-linked CD-ROMs, CBT/WBT deployment; Downloadable files as needed; integrated authoring and debugging; easy integration of existing databases; streaming media

Learning Curve: Medium-High
Programming: Icon-based, drag and drop flowchart, object-oriented creation of Java applications, HTML

Development:

Windows 95/NT 4.0

Deployment: Windows 95/NT, OS/2, Unix, Mac

Cost: \$3,995 standard edition

5. LEARNINGSAPCE 2.0

Lotus Development Corp.
www.lotus.com/learningspace
(800) 346-6409

10 Leading Online Course Development and Delivery Systems

continued from page 55

Major Features: Instructor-led, asynchronous collaborative learning system; uses 5 powerful interconnected Lotus databases for full course delivery and powerful administration; supports peer-to-peer project work and e-mail; personalized instructor-student assessment; future support of real-time interaction planned through add-on whiteboards and videoconferencing

Learning Curve: Medium

Programming: Java-based with templates and wizards

Development: Lotus Notes, Macintosh 7.1/7.5, Windows 95/NT

Deployment: Lotus Domino-supported server

Cost: \$547 for 1 master (author/instructor) license; \$440 for 10 end-user licenses; custom pricing packages available based on different master and end-user profiles

6. PHOENIX FOR WINDOWS

Pathlore Corp.

www.pathlore.com

(888) PATHLORE

Major Features: CBT/WBT options; superior built-in course management and record-keeping; streaming courseware reduces network traffic; auto-graduation of learners to remedial or advanced study; multiple team authoring from remote locations; no collaborative features; better import and sequencing than multimedia authoring features

Learning Curve: Medium-High

Programming: Point-and-click content creation, import, and sequencing via built-in Course Outliner

Development: Windows 95/NT/Workgroups/3.1, OS/2 (Win-OS/2)

Deployment: Windows NT, UNIX, Netware, OS/2=20

Cost: \$2,995 stand-alone; \$10,000 networked version with 500 users

structors quickly assemble courses by transferring existing notes, syllabus, reading assignments, and group handouts into successive frames of a WYSIWYG Web page. TopClass is a serious, cost-attractive option for anyone seeking to transfer instructor-led training to an online collaborative platform.

• **Consider Current Investments.** Some companies have already invested in an older generation of CBT/CD-ROM authoring systems. Toolbook, Authorware, IconAuthor and Quest—the most widely adopted of the earlier authoring products—have each recently launched versions for an online environment. If your CBT authoring system works well for your needs, consider pledging allegiance to the online version of that product for the time being to save on retraining and retooling—unless your educational content or the needs of your end-users clearly dictate otherwise.

Systems like Authorware allow for older generation courseware to be treated with Macromedia's Shockwave—or “shocked,” as it is termed—so that they can be accessed from standard Web browsers like Netscape and Internet Explorer. That means developers can use these tools to develop either CD-ROM or WBT, or a hybrid of both. Moreover, because Authorware is an established program, many newer delivery systems have been designed so that Authorware learning modules can be easily imported into them. In fact, some newer collaborative systems, like Symposium, are designed not so much to “author” courses as much as to import materials built in established CBT systems like Authorware and Power-

Point into their “electronic classroom” structure.

• **Assess Your Development and Deployment Infrastructure.** There's no sense in buying the latest bells and whistles if they won't run on your existing infrastructure. Lotus' LearningSpace, for example, allows instructors to build a rich collaborative learning environment, and it is fairly easy for SMEs to master. The downside is that it requires a Lotus Domino server. (Students can access courses via a Web browser, but developers and administrators must operate within a Lotus Notes environment.) By contrast, TopClass, another collaborative system that enjoys many of the same instructional features as LearningSpace, is operational across a variety of platforms, and is easier to learn and navigate than the Lotus database structure.

Step 2: Assess Learning Needs

We are a TV society. Everyone loves to see videos embedded in educational content. But course design should follow the demands of your content, not the desires of a design team that's hot to use a sexy new animated spin feature for the company logo. Given bandwidth considerations of the Internet, movies, audio and animation should serve educational purposes and not simply act as artistic embellishments.

At present, the best and most versatile systems for delivering customized animation and video-rich training from the Web may be the Macromedia family of older generation products like Authorware. When bundled in a “suite” with Director, a high-power animation and



10 Leading Online Course Development and Delivery Systems

continued from page 56

7. QUESTNET+

Allen Communication
www.allencomm.com/
(800) 325-7850

Major Features: Peer-to-peer capabilities for team training simulations; six animation types; over 130 special visual/learning effects; runs multiple animations; Designer's Edge purchased separately to assist in the instructional design/storyboarding process

Learning Curve: Medium-High
(For custom C-programming options)

Programming: C-based language (ANSI standards) embedded; supports "paste-in" special codes and programs; C-Coach for easy script selections by non-programmers

Development: Windows 3.1 or higher

Deployment: Networks equipped with TCP/IP protocol

Cost: \$2,495 unlimited run-time license; \$1,995-\$2,495 Designer's Edge; \$1,495 network edition for 100 students

8. SYMPOSIUM

Centra Software Inc.
www.centra.com
(888) 547-6300

Major Features: Real-time, instructor-led collaborative learning via integrated multi-way audio conferencing, pop-testing, application-sharing, collaborative whiteboards, breakout rooms, threaded discussion boards, and text-based chat; option to revert to CBT and asynchronous discussion boards following real-time sessions

Learning Curve: Medium-High

Programming: Java-based

Development: Windows

Deployment: Windows NT 4.0

Cost: \$35,000 Symposium server; supports up to 50 concurrent users and includes one Symposium Course Builder license; additional licenses at \$2,995.

sequencing program, it gives you the option to create and "shock" CD-ROMs using Authorware and the Shockwave plug-in that Macromedia pioneered.

Don't overlook the mix-and-match option to customize "hybrid" courses. Toolbook was designed as a CBT tool, so much of its booklike instructional design assumes that a learner will be working in isolation, waiting for auto-feedback prompts to move him or her along. With Toolbook, even in its Web-enabled form, interaction occurs primarily on one level: between the learner and the educational content.

But what if you already have the technology and know-how to use Toolbook, and want to add collaborative features to your Net-based Toolbook course? Perhaps you have 50 sales managers scheduled to take a Toolbook tutorial on sales motivation over the Web—but you'd like for these geographically separated managers to stop mid-course and "gather" online to discuss problem sales scenarios they've encountered. A good solution may be to author your course in Toolbook, then add a separate, free-standing conferencing tool that allows your managers to brainstorm on the Web.

Step 3: Assess Audience's Equipment

Never build an online course that might overshoot the technical reception abilities of your target audience. WBT is still in its infancy. Reliable delivery of multimedia—especially video and animation, the so-called fat media—can be a problem. Streaming, a technology that allows non-text media to be deliv-

ered in chunks to the recipient's Web browser or computer as it is needed, has improved things, but choked networks still remain a problem.

A less high-tech solution is simply to avoid excessive video and animation in online course development. Or use a hybrid approach: Store fat media on a CD-ROM, and use Internet hyperlinks for flexible updates to time-sensitive materials. Deploying your training via the company intranet, thus avoiding the open traffic of the Internet, is another common ploy for delivering media-rich instructional content.

Before you develop courses that can be accessed only via specialized Web-browser plug-ins, keep in mind that while many people can use a Web browser, few may actually have the know-how to download and install RealAudio (for audio reception), Acrobat's Portable Document File (for files that download in full graphic splendor) or QuickTime (for playing video segments). Never overestimate the computer savvy of your clients or end-users. Doing so may mean half of them won't be able to see or hear your Internet-enabled courses.

If course access does require special add-ons or ancillary programs, make sure all the receiving workstations can be properly configured *before* the course starts. Even in companies where state-of-the-art equipment is readily available, networked computers may not be universally equipped with simple multimedia features like sound cards or necessary plug-ins such as Neuron, the program that makes Toolbook courseware accessible via a Web browser.

If training is going to be delivered



10 Leading Online Course Development and Delivery Systems

continued from page 58

9. TOOLBOOK II INSTRUCTOR

Asymetrix Corp.
www.asymetrix.com
(800) 448-6543

Major Features: CBT benchmark system; CD-ROM/Internet hybrids; familiar booklike layout; easy-to-navigate graphical interfaces and design templates; no built-in collaborative tools; streaming audio and video with Neuron browser plug-in; Internet course management via Librarian add-on.

Learning Curve: Low-Medium

Programming: English-like OpenScript; drag and drop HTML and Java

Development: Windows 95/3.1/NT

Deployment: Windows NT; Solaris Unix with database management software (Librarian)

Cost: \$1,995 Instructor; \$3,000 per server for Librarian course management, plus graduated registered per-user charges

10. TOPCLASS

WBT Systems
www.wbtssystem.com
(415) 392-7951

Major Features: Integrated course development, delivery, and management in an asynchronous collaborative environment; automatic graduation of learners based on testing by the server with options for personalized assessment by instructor; collaborative e-mail and message boards for students to communicate with each other and the instructor

Learning Curve: Low

Programming: HTML

Development: Online with any standard Web browser

Deployment: UNIX, Windows NT/95, Mac, Solaris, Linux

Cost: \$1,295 annual corporate license (25 users); \$1,775 annual corporate license (50 users)

—V.P.

to multiple locations, check with the network teams at all receiving locations to make sure that your courseware is compatible across what may turn out to be widely divergent desktop and network configurations. You don't want to invest in a courseware development and deployment system, only to discover that the European sales division can't access the instructional platform you've chosen. Or that your client can't look at course management statistics because the system you picked has an odd database function for tracking and reporting.

What about course management and administration? While most CBT/WBT systems support an automated course management feature, generally a server-side function that tracks and reports on student progress, not all online course administrative packages are equal in their power or potential. Consider carefully what kinds of reporting you want available to you or your client at the end of each training activity. Macromedia's Authorware system has no built-in course management system, for example, but the Suite pack option includes Pathway, for course management. Pathway, however, is an add-on, and itself runs only on Windows, whereas Authorware, the multimedia course building software, supports cross-platform development and deployment.

One of the most sophisticated course management systems is supported by Phoenix for Windows. Phoenix uses a relational database to automatically track, store, and report on student online activity and progress. Custom reports can be generated based on

need-to-know requests like the amount of time it takes each student to complete a course or average group scores. Phoenix can also isolate test items that are frequently missed or misconstrued by learners. It can set up pretests and posttests or make remedial assignments. However, automated assessment may not suit your educational needs. Collaborative, instructor-led systems like LearningSpace support individualized instructor feedback, mentoring and coaching.

Step 4: Ready! Set! Test!

Never buy blind. Once you determine the best choices that fit within your learning curve and technology infrastructure, take each of the top three contenders for a test run. Viewing an authoring system is easy; most courseware companies will download a free demo version from their Web sites. Additionally, many companies have sample courses, hands-on tutorials, and white papers in their online product showcases. The ultimate test of how well a system will match your instructional needs is to design and deploy a small pilot course that mimics your essential needs in all areas.

Another source of comparative information is to talk to buyers who have used these systems. The Internet supports several active, open discussion lists and electronic forums where experienced developers and instructional designers congregate to discuss the real-life pros and cons of online instructional systems in action. The information on these sites can be invaluable in making a final comparative analysis. ■



Information in this list is current as of January 1998. Prices may vary.

Web-Based Training Discussion Forums

A good source of comparative shopping information are the online forums listed below. In addition to these "open" resources, you may want to visit the Web sites of companies like Asymetrix, Macromedia and WBT Systems to participate in product-specific developer's forums and to browse product-specific archives and reports.

LISTSERVS AND DISCUSSION GROUPS

Association for Educational Communication & Technology

To subscribe, send the e-mail message "subscribe aect-l" to listserv@wvnm.wvnet.edu

AWARE-List—Macromedia's Authorware System

To subscribe, send the e-mail message "subscribe aware your name" to listserv@cc1.kuleuven.ac.be

Internet Trainers Nettrain List

To subscribe, send the e-mail message "subscribe nettrain your name" to listserv@ubvm.ca.buffalo.edu

TopClass Discussion List

To subscribe, send the e-mail message "subscribe TopClass-Talk your e-mail address" to listserv@wbtsystems.com

WebTraining-L

To subscribe, send the e-mail message "SubscribeWEBTRAINING-L" to SubscribeWEBTRAINING-L@brandon-hall.com

World Wide Web Courseware Development List

To subscribe, send the e-mail message "subscribe WWWdev [your name]" to listserv@unb.ca

USENET NEWSGROUPS & ASYNCHRONOUS DISCUSSION FORUMS

alt.authorware

Discussion of Macromedia's Authorware system.

alt.multimedia.director

Discussion of Macromedia's Director system.

comp.multimedia

Discussion of multimedia applications and authoring systems.

The Sloan Foundation—Asynchronous Learning Networks Web

<http://www.aln.org/alnweb/nfindex.html>
Open discussion forums on asynchronous online learning. Research journal, industry news and product reviews.

Web-Based Training Information Center—Open Forums

<http://www.filename.com/wbt/index.html>
Open discussion forums for WBT developers, designers and training executives.



Your 24-Hour Virtual Store

Over 100 vendors — all reputable industry leaders. Over 3,000 products — books, video/audio tapes, software, CD-ROM, assessments and more. All in the Training Mall. Purchase securely on-line and get the products you need quickly.

tour the world of training
trainingsupersite.com



Your Gateway To The Finest Speakers In The Industry

Log onto the Speakers Bureau and find everything you need to arrange a speaker for your next event. Search the speakers database for backgrounds on hundreds of speakers. Submit reviews of speakers you've heard. Read reviews of speakers you haven't.

tour the world of training
trainingsupersite.com



Looking For Work?

Check out the Job Banks Career Center and see who's hiring. Post your resume here for FREE.

Position To Fill?

Run a listing in the Job Bank Recruiting Center and fill the position in a flash.

tour the world of training
trainingsupersite.com