The Internet and intranets offer some wonderful alternatives for the delivery of training. This FAQ is designed to cover the basics of this technology. Please send an email if you have any suggestions for additional questions to be included. And good luck with your e-learning!

What is e-learning?

E-learning is instruction that is delivered electronically, in part or wholly — via a Web browser, such as Netscape Navigator, through the Internet or an intranet, or through multimedia platforms such CD-ROM or DVD. Increasingly — as higher bandwidth has become more accessible — it has been identified primarily with using the Web, or an intranet's web, leveraging the Web's visual environment and interactive nature.

**How can I determine whether
e-learning is right for
our organization?**

Here are several questions you can use to assess the viability of e-learning for your company:

1. Do you have management support?

2. Do you have enough potential users to justify the cost of purchase or development?

3. Do you have a target audience who can use or learn to use a computer?

4. Will they accept a Web-based program?

5. Will they learn from this particular program?

6. Will the program provide a method of instruction that is easier, faster, cheaper, safer, or more engaging than the alternative?

7. Did you come to this page looking for the answer to this question?

**What are the Advantages of
e-learning?**

Flexibility, Accessibility, Convenience - Users can proceed through a training program "at their own pace and at their own place." They can also access the training at any time, and only as much as they need - known as "Just in time and just enough."

Cross platform - E-learning can be accessed by Web browsing software on any platform: Windows, Mac, UNIX, OS/2, Amiga, etc. You can deliver your training program to any

machine over the Internet or intranet without having to author a program for each platform.

Web browser software and Internet connections are widely available - Most computer users have access to a browser, such as Netscape Navigator and are connected to a company's intranet, and/or have access to the Internet.

Inexpensive worldwide distribution - No separate distribution mechanism is needed. E-learning can be accessed from any computer anywhere in the world, keeping delivery costs low.

Ease of update - If changes need to be made in the program after the original implementation, they can be made on the server which stores the program and everyone worldwide can instantly access the update. Courses can be designed to access designated current information, such as the latest new product specifications from any other server worldwide for an on-the-fly update whenever the program is run.

Travel cost and time savings - There are no travel costs for bringing remote employees to a centralized workshop because the Web is available from the desktop. And according to the report "Return on Investment and Multimedia Training" the actual time required for training by computer averages about 50% that of instructor-led training, lowering costs further.

What are the Disadvantages of e-learning?

Bandwidth limitations - Limited bandwidth means slower performance for sound, video, and intensive graphics, causing long waits for download that can affect the ease of the learning process. The problem is greater over the public Internet where more traffic jams occur, and less on a company's intranet which usually has greater bandwidth. Future technologies will no doubt help to solve this problem.

Are computers replacing human contact? - There's a general concern that as we move towards more computer usage, a glowing terminal replaces a friendly face. Decreasing instructor-led training makes some trainees uneasy. If this is a concern, consider a gradual introduction of the technology.

Today's e-learning programs are too static - As with any emerging technology, the level of interactivity in e-learning is too-often limited. This is gradually improving, and as it does the impact of the training on performance improves also.

Takes more time and more money to develop than expected - Like any first-time challenge, learning about and implementing new technology takes more resources (and more aspirin) than expected. You can make it easier by starting with a simple program and building on success. Also, remember that the greater portion of costs associated with e-learning are start-up costs. Programs can be delivered and re-used with fewer costs than with traditional methods.

Not all courses are delivered well by computer — Some training topics are not best served

by computer-based training and require a more personal touch. Team building activities and dealing with emotional issues such as downsizing come to mind. E-learning and other technologies for training are mainly for assisting the learning process and are not for replacing methods that already work well.

What are other related terms for delivering training over a network?

There are other terms for remote access training including Internet-based training, intranet-based training, online training and net-based training.

Internet-based training - any training that can be accessed over the Internet. Usually this is done with the World Wide Web, but e-mail correspondence courses and file transfers also fall into this category.

Intranet-based training - training based on a company's internal network. Web browsers are used to access company pages, but they are only accessible within the company.

Online training - an all-encompassing term that refers to any training done with a computer over a network, including a company's intranet, the company's local area network, and the Internet.

Net-based training - same as online training.

Why did you choose to call it e-learning?

E-learning is the most widely-used and widely-understood term for this type of training. In past surveys of our readers and Web site visitors, we polled to see which term people were using most often. While other, older terms are likely to persist, e-learning seems to have captured the field. As technology evolves, so does terminology.

What is multimedia training?

Multimedia training is an older but still widely used term that describes a type of computer-based training that uses two or more media, including text, graphics, animation, audio (sound/music), and video. In practice, multimedia uses as many of these media as is practical to produce a colorful, engaging program delivered via the computer. A typical program allows users to control their progress and pace through the course so everyone can learn at his/her own speed. Both the terms multimedia training and computer-based training now fall broadly under e-learning.

What are some other terms and technologies

used for training?

Other technologies include:

Computer-based training (CBT) - an all-encompassing term once used to describe any computer-delivered training including CD-ROM and the World Wide Web. Some people use the term CBT to refer only to old-time text-only training.

Distance learning - in its most common historical form, this refers to a broadcast of a lecture to distant locations, usually through video presentations

Desktop training - any training delivered by computer at one's desk.

Desktop video conferencing - a real-time conference using live pictures between two or more people on a network who communicate via computer

Interactive training - an umbrella term that includes both computer-based and multimedia training

Computer-assisted instruction - a term used more commonly in education for any instruction where a computer is used as a learning tool

Self-paced training - training which is taken at a time and a pace determined by the user (Hmmm. . . kind of like reading this page, huh?) Used historically for text or audio/video self study courses, the term is used by some organizations now to include computer-based, web-based and multimedia training.

Is this a medium worth investing in?

Yes. More and more information services and programs within organizations are moving to the World Wide Web. The Web can provide the most efficient delivery of information because of its ability to be accessible from anywhere, anytime. and to disseminate a standardized, updateable version to multiple users. Think about this FAQ. We only had to publish it once and store it on our server. If we need to update it, we can just upload another version and you wouldn't know the difference - if you hadn't seen the previous version.

With careful attention to instructional design during the development phase, Web training can be a valuable addition to your company's training and performance support offerings. The future of the Web and Web technologies is long-term and big impact according to all estimates.

What is driving the interest in e-learning?

New demands in organizations are increasing the interest in e-learning on a daily basis. The need for less expensive ways to deliver training has led many companies to explore the

option of e-learning. The convenience for users of the programs - at their own pace, at their own place — and the engaging nature of the multimedia delivery are big advantages. The centralized nature of web-delivered training makes the delivery standardized for all users who take the course. E-learning is often less expensive and more convenient the alternatives. E-learning is a fascinating new field, which will likely have a vast impact on all professionals in the field. And, well, it's pretty fun to use and develop for, too.

Where can e-learning be delivered?

To any computer — anywhere — that can access the
Internet or intranet.

**What criteria should be used in evaluating
e-learning?**

Here are ten criteria we use in the judging of the Brandon Hall of Fame Awards sponsored by brandon-hall.com:

1. **Content**

Does the program include the right amount and quality of information?

2. **Instructional Design**

Is the course designed in such a way that users will actually learn?

3. **Interactivity**

Is the user engaged through the opportunity for input?

4. **Navigation**

Can users determine their own way through the program?

Is there an exit option available? Is there a course map accessible?

Is there an appropriate use of icons and/or clear labels so that user don't have to read excessive documentation to determine program options?

5. **Motivational Components**

Does the program engage the user through novelty, humor, game elements, testing, adventure, unique content, surprise elements, etc.?

6. **Use of Media**

Does the program appropriately and effectively employ graphics, animation, music, sound, video, etc.?

Is the gratuitous use of these media avoided?

Is the soundtrack really annoying?

7. **Evaluation**

Is there some type of evaluation, such as:

- completion of a simulation?

- mastery of each section's content before proceeding to later sections?

- section quizzes?

- final exam?

8. **Aesthetics**

Is the program attractive and appealing to the eye and ear?

Does the structure of the screen add to the program?

9. **Record Keeping**

Are student performance data recorded, such as time to complete, question analyses, and final scores? Is the data forwarded to the course manager automatically?

10. **Tone**

Is the program designed for the audience? Does it avoid being condescending, trite, pedantic, etc.?

What hardware is required by the end user?

The basic hardware required for a user to take a e-learning course is:

A computer fast enough to handle the training program. For Windows computers, a Pentium or better is preferred. For Macintosh computers, a 68040-based machine is OK, but a PowerPC is preferred.

A sound card capable of playing back any audio files the training program uses.

A network connection, whether connected directly to the company server, or via a modem that can access the Internet. If your training is delivered via the company intranet, for example, your users would not need a separate Internet connection.

What software is required by the end user?

A web browser

Any specialized browser plug-ins or controls that are required by the particular training program, such as to play audio or video files.

**Does the end user need the same computer system
as the developer?**

No. One of the major advantages of e-learning over other types of computer-based training is cross-platform compatibility. Web browsers can access e-learning using a language that is platform-independent.

**Can you use Web technology on a company's
internal network?**

Yes. The same technology used for the Internet exists on many companies' internal local area network, or intranet. While the public Internet is getting all the publicity in the press, the fastest growing segment of the market for Web browsers and servers are companies' internal intranets.

**What is the difference between the World Wide Web
and the Internet?**

The Internet includes all electronic transmissions, including e-mail, file transfers, and the Web. The Web is just one part of the Internet, but it is the fastest growing, most promising part, especially as training is concerned.

**How do you influence decision-makers to use e-learning vs. traditional training
options?**

The costs for a e-learning program are often lower than those associated with instructor-led training. The biggest stumbling block is often the start-up cost for investment in the technology and development time. But the costs associated with delivery are much lower

than for traditional methods.

How can you justify investing in e-learning?

Significant cost savings have a way of catching management's attention. Lower training costs result from the reduction in time and resources for delivery, including eliminating the costs of traveling to learning centers.

How can management be assured employees are actually completing the program?

Because many e-learning programs are designed to be "at your own pace," the importance of tracking a student's progress is a concern. Several programs have administrative features that keep track of where employees are in the course and how well they are doing.

How do you motivate employees to use e-learning?

Any motivation strategies you use now for other training can be applied to e-learning. By using a computer, some reward structures can be automated. In addition, the tracking and reporting available with e-learning allows you to structure rewards and requirements for completion and mastery. Students will often need to be sold on using something new, and sitting at one's own computer doesn't match having free donuts and coffee at a workshop.

How do you help your training staff that is used to instructor-led training (ILT) make the transition and embrace e-learning?

To make the transition easier for trainers as well as students, some organizations combine elements of e-learning and ILT for some early programs. There are a variety of new roles and career opportunities for those who are willing to adapt to the new technologies.

What kind of a team is necessary to develop e-learning?

Teams range from just one, very dedicated person who does it all, to project teams of over 40 professionals.

In general, at a minimum, you will need:

- a project manager capable of dealing with diverse work styles and personalities
- an instructional designer familiar with computer-delivered instruction
- a programmer or author to use the authoring tool
- a graphic artist
- a subject matter expert
- a web master for maintaining the program on the server
- and, of course, someone who can obtain funding for e-learning from management

The people you use, naturally, will have either one or a combination of the above skills, or it may be just that one person who can do it all. Do you know someone like that?

How much multimedia is being used now for e-learning?

Multimedia on the Web is growing in popularity with languages like Java and plug-ins for authoring tools like Shockwave making it possible. Bandwidth is less of a limitation than it once was, and the vision and the potential are accelerating as a result.

How about multimedia in the future for e-learning?

Emerging technologies are providing greater bandwidth (i.e., bigger pipes), and greater compression (i.e., lower fat) for delivering audio and video. Multimedia over company intranets and the public Internet is increasingly commonplace.

Think of Detroit in the early-to-mid 1900's when car makers were trying to figure out basic technologies, such as automatic transmissions and 10-cylinder engines. Everyone knew the problems would get solved eventually and just about everyone was working on it. Once someone hits on a good idea, everyone jumps on board.

How do you determine the appropriate level of interactivity and media?

The type and amount of interactivity required varies with the instructional objectives of a program. It is generally not possible for a program to be "too interactive." However, it is possible for a program to suffer from too many multimedia bells and whistles. They become gratuitous when they don't contribute to meeting the instructional objectives.

From an instructional designer's perspective, how is Internet-based training different from multimedia training?

Designing for the Internet presents a special problem. Connection speeds can sometimes be slow or intermittent, and downloads can slow down due to factors over which trainers

often have no control. As bandwidth improves, there is less of a need to design out most of the "fat media" in the program, especially video. Design in interactivity, discussion, and access to other resources that are part of the benefits of training on line.

From a student perspective, how is e-learning different from CD-ROM based training?

CD-ROM-based training programs usually have their own unique interface. E-learning requires a Web browser, so the basic navigation scheme is usually familiar to the student. Students who will be receiving e-learning should be familiar with how to use a browser. In general, the student should see little difference in the actual training once it has been accessed. If the training is over an intranet, the difference is not very noticeable, but over the Internet, connection speeds and download times vary with bandwidth, whereas CD-ROM technology using the computer's own resources is consistently fast.

Do I need a learning assistant or facilitator like Microsoft's Online Learning Institute (MOLI) has as a part of the learning process?

An assistant or facilitator available online can be helpful but your training can be designed without them. An assistant on line can help handle customer service issues or technical problems. A facilitator can help with content issues and can guide discussions. e-learning - especially within an organization — is usually designed to be a stand-alone process to be taken at any time of the day or night. Even in the latter case, having e-mail access to a webmaster, course manager, or content expert can be helpful.

Can an existing CBT be converted into a e-learning?

The major authoring tools allow you to create both a stand-alone version of the program, and a Web version of the program. Depending on which authoring tool you use to create a pre-existing CBT program, you may be able to convert most of it for delivery over the Web.

What special programming languages do you have to know to create programs for the Web?

Although you need to be somewhat savvy in all things Web-ish, there are no complicated programming languages you need to learn. In general, you should be familiar with HTML, although this is not required if you are using one of the high-level HTML editors, such as Microsoft's FrontPage which allows you to create Web pages without knowing HTML. The major authoring programs are nearly the same whether you are developing for CD-ROM or the Web. There are also "object oriented" visual tools for programming with Java, such as

Aimtech's Jamba and Symantec's Visual Cafe.

How much technical information do I need to know about specific Web languages, like Java?

Java is a programming language that allows the developer to create small applications called applets that control specific aspects of a e-learning program, such as creating interactive animations. Shockwave is a plug-in for programs developed with Macromedia's Authorware so these programs can be viewed with a Web browser over the Web. There is also the Neuron plug-in, which allows ToolBook II applications to be viewed with a Web browser. You should be aware of what Java is capable of, although the specifics of programming a Java applet are not necessary if you use the right authoring tool. Or send one of your staff off to authoring school.

Whatis Adobe Acrobat? Do I need to use it?

Acrobat is used when existing documents need to be displayed on screen or downloaded in the same format as they appear on paper. Acrobat saves the graphics and font files along with the text of the document so that it always looks exactly the same on the screen no matter where or how it is viewed. Government agencies use Acrobat for electronic versions of reports and papers because they need to make references to specific page numbers. You can use Acrobat to reproduce existing company documents if they need to look the same on the screen as they do on the page. An Acrobat file can also have hyperlinks within and between documents. Be aware that HTML has similar functionality and is often easier to use.

What about the overall impact of the Internet?

Someone pretty bright put it well: "The Internet is being overhyped but underestimated." The Internet will change everything.

Should the training be interactive on the Web or should it be downloaded and used off-line?

It depends on the type of training and administration that you are after. Real-time administration, as the user is taking the course, can be achieved while the user is online. Off-line programs can be set up to send completion information and test scores at the end of the course, and, if necessary, download another portion of the course. But if a student is taking a course off-line, he or she may not be aware of any updates to the program that may occur while the course is in progress. If the online course requires a change or update of some part of the data or coding, the student is not disrupted, and does not have to

initiate another download of the entire course.

Where is the water cooler?

Down the corridor on the right. Just past the cubicle with all the Dilbert cartoons.

What kinds of authoring systems are available for e-learning?

Authorware, *ToolBook II*, *IconAuthor*, *Quest*, *IBTAuthor*, *CBIQuick*, and many others are currently available, most with training components built in. If you want to start with a simple program, an HTML editor or Web page layout program like Netscape Navigator Gold, Microsoft FrontPage, Claris Home Page or Asymetrix Web Publisher may be all you need.

How fast a connection is needed to access e-learning effectively?

If your program utilizes video, animation, and audio, the connection should be as fast as possible. For home office users, this means ISDN or 33.6Kbps & 56Kbps modems. If the training utilizes limited graphics and no audio or video, then a minimal connection via a 28.8 modem should be adequate.

What is bandwidth?

The actual speed available at the time of the transmission. The more users are on a network, the less bandwidth available for that transmission.

How can I calculate how fast my program will be delivered over a network?

It is difficult to calculate actual speeds because bandwidth varies so often. One second, your training might be delivered at 6.5Kbps, the next it may be 1 or 2 Kbps or even less. In general, your files are calculated in bytes (MB, KB, etc.) and bandwidth is measured in bits (Mb, Kb, etc.). To determine how many bits your program is, multiply the number of bytes by 8. A program that takes up 4 megabytes of space takes up 32 megabits. If your connection speed is 2Mbps (Megabits per second), this file would take 16 seconds to download. Alternatively, over an Internet connection of 33.6Kbps (.0336 Mbps) your 32 Mb training would take about 960 seconds. All this is assuming ideal conditions. And, of course, conditions are always less than ideal.

Do you need a Web server to provide Internet-based training?

A Web server is needed to have the training available to others. The options are a server maintained by your department or information technology (IT) department, or a public Internet service provider (ISP).

Once a course is developed, how do you get it on the Internet or intranet?

Most of the time it is just a matter of placing your program and its accompanying files on your server, then testing to ensure it works properly. Ask your network administrator, Webmaster or ISP provider how to upload the files the Web site. After that it is a matter of marketing.

How can you charge for courses over the Internet?

The most utilized method is to have the users pay up front by credit card, then give them a password that lets them into the program once payment has been made. Security for taking payment over the Internet is relatively good. For internal programs over an intranet, course registration software can automate chargebacks to the purchasing department.

What about security? I've heard about viruses, hackers, etc.

Your company's intranet should be protected from hacker intrusions from the public Internet by a firewall. Your IT department or network administrator can recommend virus protection software. While these problems exists and make big news in the media, the percentage of incidents is quite small and should not deter your work deploying e-learning.

What is a firewall?

A firewall is a hardware and/or software security measure taken by companies with internal intranets to keep out unwanted transmissions or visitors from the Internet. An effective firewall will keep out hackers, casual users, and accidental queries while allowing access to legitimate users of the company's intranet from a remote location. Some firewalls limit the ability of employees within the company to download files from the Internet to keep out viruses.