

# Considering e-Learning for Blood Banks and Transfusion Centers

**William D. Baker, Ed.D.  
and Ward Flynn**

---

---

## ***The Blood Bank Learning Imperative***

Blood Banks are unique in the concentration of disparate specialists each with their own educational requirements. Many employees are required to update their skills with continuing education, re-certification, and other forms of on-going training. Quality Assurance departments in Blood Banks and Transfusion Centers are focused on regulatory issues—they are also subject to a wide range of required training for all new-hires and annually thereafter. In addition to FDA and AABB mandated training, Blood Banks, like many other organizations are subject to Department of Health, Department of Labor, and OSHA required training. Two additional issues impact blood bank training: one, many blood banks are subject to high staff turn-over rates; and two, most blood banks are small and have limited resources with which to work. Finally, the issue of risk mitigation cannot be overemphasized. Putting an employee to work without required training leaves the institution vulnerable to litigation.

As part of a highly regulated industry, the number of required training programs in blood banks and transfusion centers has grown dramatically in recent years. Accordingly, the cost to remain training-compliant continues to escalate. Since every facility must comply, the proportional cost to remain compliant is not even—smaller centers spend a disproportional part of their budgets on compliance training.

For all of the reasons discussed above, the training culture in many blood banks is reactive—with resources going almost exclusively to compliance. Planning is typically more tactical than strategic because managers are caught up in a perpetual game of catch-up—juggling budget, staff resources, schedules, record keeping, and the acquisition of learning materials.

## ***How e-Learning impacts training departments***

The long tradition of healthcare training relies on a combination of scientific and background “book-learning.” Further, the traditional training format consists of practical hands-on instruction in a Socratic and collegial learning environment that challenges the intellect of students and the wisdom of instructors with a lively give and take dialogue. With such a tradition, it may be assumed that some training traditionalists may be wary of the efficacy of e-Learning in a healthcare setting.

The Food and Drug Administration (FDA) as well as the Occupational Health and Safety Administration (OSHA) have not taken a definitive stand for or against e-Learning, however, both utilize e-Learning for their own training purposes.

There is no doubt that e-Learning is here to stay, so it is useful to compare e-Learning to traditional classroom instruction. To that end, the following questions are usually the first asked:

1. **Will adult learners comprehend and retain as much with e-Learning?**
2. **Can the learner demonstrate understanding and an ability to apply what they learn?**
3. **Is the material sufficiently specific to the learner's actual job?**
4. **If a learner does not understand something, how is a question asked?**

Training managers and trainers alike are interested in the answers to the following questions as well:

5. **How does an e-Learning initiative affect the training budget?**
6. **How many trainers are replaced in a typical e-Learning deployment?**
7. **What is the impact of e-Learning on traditional classroom trainers?**

The \$64,000 question that is on the minds of every professional trainer and administrator considering an e-Learning initiative:

8. **How do healthcare and blood bank employees respond to e-Learning?**

### *The Answers*

#### **1. Will adult learners comprehend and retain as much with e-Learning?**

The comprehension, retention, and ultimately the ability to apply what is learned has to do with the quality of instruction, materials, and motivation of the learner—the same with e-Learning or classroom instruction. The truth is there are pluses and minuses for both. Research indicates that with all things being equal, both are effective for all but the most esoteric subject matter—at which point live interaction offers a significant advantage.

#### **2. Can the learner demonstrate understanding and an ability to apply what is learned?**

Classroom training routinely includes testing as well as the intervention of an instructor to sign-off on the learner's understanding and ability to apply what they have learned. While many e-Learning programs do include testing, a strategy for supervisor sign-off is lacking in most. The combination of objective and subjective evaluation makes e-Learning comparable to most classroom settings for most subject areas.

#### **3. Is the material sufficiently specific to the learner's actual job?**

If the first question is true, i.e., that e-Learning can deliver similar results, then it is the quality of the instructional materials that makes the difference. It makes sense that a generic course on Personal Protection Equipment (PPE) is only effective if the equipment discussed is what your employees actually use. If your staff uses aprons and the instruction discusses lab coats the value of instruction is minimal.

#### **4. If a learner does not understand something, how is a question asked?**

Many classroom instructors judge the quality of a class by the number and quality of questions asked. How can a student ask a question of a computer? The answer is that some questions are asked about the process (how to use the computer program) which are available at the touch of a button to every student. Another class of questions is about vocabulary, so a built-in glossary is a plus. What about a question of substance—an inquiry of meaning? A popular work-around is a blended program that combines e-Learning with live instructors. However, a good e-Learning program will have a "hot line" that directs a question to a responsible person via intercom, phone, or email.

**5. How does an e-Learning initiative affect the training budget?**

An informal survey of training directors indicates that in past years, e-Learning initiatives were quite expensive and called for a significant outlay of funds for elaborate infrastructure purchases. New vendors have appeared with a better understanding of blood banks and healthcare budgeting that offer more affordable solutions. Budgets rarely shrink, so while e-Learning itself saves money most e-Learning is a strategies, "...do a lot more with the same or slightly more resources."

**6. How many trainers are replaced in a typical e-Learning deployment?**

In most situations, trainers are not replaced. Instead, their duties shift in two directions: one, to assist in the development of new courses and learning materials; and two, to continue training on subjects deemed more appropriate to live instruction instead of e-Learning.

**7. What is the impact of e-Learning on traditional classroom trainers?**

Since mundane, repetitive training chores are often shifted to e-Learning this leaves the richer, more interesting training assignments for live instructors. Most trainers are thankful for the advent of e-Learning after it is deployed.

**8. How do healthcare and blood bank employees respond to e-Learning?**

The experience varies, but most report satisfaction. Very few are unhappy, and those that are, are usually reacting to pre-existing "computerfobia." Well designed courses do not force learners to study the same thing over and over, but give them credit for pre-existing knowledge. Many learners are delighted to work at their own pace, motivated by rich graphics, video and audio, and are delighted to be freed from the confines of a structured classroom. Since instruction happens on-demand at the learner's convenience, employees no longer wait for scheduled classes. Lastly, because study proceeds at the learner's pace, there is no reason to be away from vital duties for long or fixed periods of time as is the case with classroom training.

***e-Learning—not the same old, same old***

The good news is, implementing an e-Learning initiative with a well thought-out plan will more than likely lead to great success. The better news is that adopting an e-Learning strategy today, can forever transform a training department by moving it from the reactive back-seat to the pro-active driver's seat.

e-Learning is no longer experimental and has definitely come of age<sup>1</sup> even while costs have come down dramatically. Now is the right time to investigate. e-Learning is not a passing trend—it is very real—and here to stay. Modern e-Learning bears little to no resemblance to the computer-based training of even a decade ago. Think interactivity, multimedia, animation, tests that act as diagnostic tools to guide the learner to optimal learning. In fact, since the so-called dot-com debacle and the crash of the technology sector in 2000, e-Learning has continued to grow and generate profits for investors. The reasons for this success are simple. e-Learning can deliver certain kinds of training faster, better, and cheaper than traditional alternatives<sup>2</sup>. If you develop a sound strategy and implement it systematically, you can expect a measurable Return On Investment (ROI)<sup>3</sup>.

There is enough history and data available to reliably anticipate how your e-Learning initiative will work. As described earlier, e-Learning initiatives typically do not replace trainers

---

<sup>1</sup> Severs, Gary. Dazed and Confused by E-Learning, *Training & Development Magazine*. October 2002.

<sup>2</sup> Ibid.

<sup>3</sup> Harris, Paul. ROI of E-Learning: Closing In. *T&D Magazine*. February 2003.

or reduce budgets<sup>4</sup>. Instead, trainers are freed-up to create and facilitate higher-level training events. The computer can even schedule classes and maintain records for small departments or the entire facility—freeing trainers to do what they do best—train. The promise of e-Learning is to accomplish much more with (if not less, then) the same resources.

### ***What e-Learning Does Well (and not so well)***

Today's technology is compelling, interactive, and easy to operate—even for first time computer users. While some proponents of e-Learning would tell you that nothing is better—that zealous position flies in the face of common sense. No computer is likely to touch your heart the way some teachers can. It is unlikely that a computer will stir your passions or uplift your spirit. That said, a popular belief that e-Learning is always second best is far from accurate. Many experienced teachers, facilitators, and presenters, including the authors, have come to believe that there are some things e-Learning can do even better than a live instruction. Consider the following.

As a student, have you ever lost interest in a class and dozed off, even for a moment? Perhaps your mind just wandered off—and staring into space or doodling in your notebook—while several minutes passed? Have you ever noticed this phenomenon from the instructor's point of view? Good instructors will generally ask the learner a question to generate interest. What did you do?

Whatever your technique to re-engage a wandering learner's mind, how many times would it work, for how many student? How long before the slowest learner was setting the pace for the whole class? And, what of the conundrum that by allowing your least motivated students to set the pace you will soon lose the interest of the most motivated?

A computer-based, e-Learning program operates in a completely different manner. Each learner is engaged one-on-one with the program. The pace of learning is self-managed, and self-motivated. If the learner is interrupted, bored, or even dozes off—the computer patiently waits. When the learner's focus returns, the computer proceeds systematically to the next learning phase. In short, an e-Learning program exhibits infinite patience and perfectly consistent feedback for every learner, at any pace, in every session.

Processes, rules, regulations, and operating procedures are perfect subject matter for e-Learning programs. Creative endeavors with varying degrees of subtlety may be better suited for live training. However, when live training is blended with e-Learning as part of a well designed strategy the results are the best of both worlds.

### ***The Best of Both Worlds: Blended Training***

Blending is not just a strategy that includes both live and computer-based programs. Blending unifies both modalities into a single application.<sup>5</sup> For example, a class may be convened where material is presented to a group that is later augmented with one-on-one, self-paced e-Learning, assessment, and scoring. The significant benefits of a skilled facilitator, group discussions, and the systematic, patient presentation of e-Learning combine to create a rich learning environment.

### **Performance Tracking**

By far the thing a computer does best is maintain records (in databases) and display information in the form of reports. In the e-Learning arena, the tool that does this is usually called a Learning Management System (LMS). Training professionals can expect an LMS to keep student attendance and performance (grades or completion) results for every class tracked

---

<sup>4</sup> Hartley, David E. E-Valuation: Pricing E-Learning. *Training & Development*. April 2001.

<sup>5</sup> Hartley, Darin. All Aboard the E-Learning Train. *Training & Development*. July 2000.

by the system. Some systems will perform detailed analysis of tests and determine the efficacy of individual questions by performing an item analysis of each test question and comparing it to others. Some training departments, may find such sophistication unnecessary, but every blood bank or healthcare facility will want to know whether the system tracks non-e-Learning classes.

Most LMS's allow for the inclusion of multiple teaching modalities: live classroom training, video tapes, off-site seminars, college classes, as well as multiple e-Learning offerings. It should be possible to integrate e-Learning programs with LMS architecture so that the employee's performance is automatically tracked and recorded. However, how does the LMS know that a given employee has attended a CPR class at the local community college, let alone when, and whether or not they passed? The answer is that those results must be entered into the LMS. Once included, the LMS should be able to manage thousands of employees attending hundreds of classes.

The best Learning Management Systems will do more than keep electronic records and print reports—they will automatically notify individual employees by email before their certification lapses. If no action is taken by the employee, a second notification is sent along with a copy to the employee's supervisor assuring that the facility's compliance is never jeopardized because of an individual's failure to follow-through.

Lastly, it is important for blood banks and transfusion centers to be wary of paying too much for bells and whistles that offer little practical value. Ultimately, resources should be put into course content and development than in the database tracking learner performance.

### ***e-Learning Technology & Terminology Overview***

e-Learning is often confused with distance learning. Distance learning usually describes a class that is distributed to individual learners as videoconferences, slide shows, and/or Internet broadcasts. In many cases, distance learning involves little more than a class syllabus, reading list, and assignments posted on a website. e-Learning, on the other hand, involves self-paced, stand-alone interactive instruction programs that may, or may not be integrated with distance learning programs.

e-Learning technologies involve several common elements regardless of the vendor supplying them:<sup>6</sup>

---

<sup>6</sup> Segers, Gary. Dazed and Confused by E-Learning. *T&D*. October 2002.

<b>e-Learning Components</b>		
<b>e-Learning Component</b>	<b>Function</b>	<b>Examples</b>
Content Learning Management System (CLMS)	Organizes a database of learning elements	Text, diagrams, charts, pictures, videos
Learner Interface	Presentation of instructional materials into a cohesive unit to make it easy for the learner to understand and interact	Usually a page of instruction that includes the appropriate learning elements from the CLMS along with navigation tools to move forward, backward, etc.
Assessment and Testing	Testing, scoring	Multiple choice, T/F, scenarios, matching, etc.
Learning Management System (LMS)	Tracking individual and group performance	Data collection, tabulation, and reporting for individuals and managers
Authoring Tools	This tool permits administrators to build content in the form of text, pictures, interactivity and testing for use by learners	These tools integrate text editors, picture editors, and web page editing capabilities into one package

### ***Buy or Build***

A review of most vendors yields four major categories that limit most blood banks to four e-Learning implementation initiatives:<sup>7</sup>

1. One-off customer developers can be hired to develop media-rich programs one at a time.
2. Some organizations have made the significant commitment necessary to develop their own programs in-house.
3. A number of vendors supply sophisticated infrastructure products to track learner performance but do not offer content.
4. Still other vendors have amassed large libraries of generic classes on a wide range of topics.

Until now, a blood bank embarking on an e-Learning initiative was forced to either build their own, or buy the necessary infrastructure and/or courses to fulfill their goals.<sup>8</sup> The biggest problem with these choices is that all of them result in the blood bank training department being forced to develop most, if not all, of the content for their e-Learning initiative—a daunting choice for all but a few blood banks with big budgets and a willingness to make a huge investment.

What follows is an analysis of the four options described above:

---

<sup>7</sup> Francis, Laura M. and Randy Emelo. E-Learning 1.0 Buy Versus Build: A Battle of Needs. *Learning Circuits Online Magazine*. January 2002.

<sup>8</sup> Ibid.

<b>Usual e-Learning Deployment Options</b>				
<b>Solution</b>	<b>Description</b>	<b>Advantage</b>	<b>Disadvantage</b>	<b>Cost</b>
One-off Custom Development	Multimedia developers create content by contract	Usually media rich and developed to the precise requirements of the client	Emphasis is on interface and graphics, probably lacks CLMS/LMS*	High cost; making changes or updates usually involves significant additional costs
In-House Development	Commercially available authoring tools support in-house development	Total control over project limited only by skills, imagination, and resources	Time consuming, highly challenging learning curve; authoring is tip of the iceberg	Entry costs are reasonable, but staffing, time, and add-ons can get out of hand
Infrastructure Purchase	Vendor supply CLMS/LMS* and deployment infrastructure as turn-key	Feature-rich, sophisticated, will grow with demand	No content. More features than some clients need	Very costly—especially since no content is supplied
Generic Content	Vendors offer courses on OSHA and other general business subjects	Fast, easy to implement... usually work with commercial LMS*	Generic content is probably not compliant for OSHA or FDA; nothing available for Blood Banks	Low to moderate costs, often purchased by subscription

\*CLMS = Content Learning Management System

LMS = Learning Management System

### ***Beyond Consideration—Strategy?***

An e-Learning Strategy will provide a road map for the management of employee knowledge for your Blood Bank now and for years to come. Quality and Training Managers will have up-to-the-minute records at the touch of a button. When compliance training is supported with an e-Learning system, there never need be a person going to work without appropriate training, and there will never be a concern about whether the staff is in compliance as an inspector walks through door.

For a strategy to work well, it should address a number of the key issues described below. Like any strategy, it is important to avoid the pitfall of becoming tactical or too specific. Ultimately, a strategic plan should be made accountable to measures that can be observed, tabulated and tracked over time.<sup>9</sup> In this way, it is possible to defend the strategy when budgets shrink and alter it when priorities change.

A process of developing a strategy can be an important process for a training or quality department to undertake because it can raise the awareness of others in the facility to the importance of quality, compliance, and training to the overall success of the organization. Moreover, it can go a long way toward pre-selling an initiative before it must be formally presented and defended.

<sup>9</sup> Guest, Susan and Jennifer Juday. Guidelines for Buying E-Learning Services. *Learning Circuits Online Magazine*. November 2001.

First and foremost, a strategy must include the following, which may be viewed as a check list:

- Develop an over-arching vision for your e-Learning outcomes**
- Gather the facts and figures**
- Assess the readiness of your organization for change**
- Training needs analysis**
- Build your business case and sell it**
- Select your delivery platform**
- Measures and continuous improvement**

### ***Summary***

Early adopters in healthcare and blood banking facilities everywhere have already jumped on the e-Learning bandwagon. Now centers of every size are carefully assessing their options and choosing vendors or developing their own programs internally.

The benefits to the organization include risk mitigation, on-demand training, reduced cost, improved efficiency with centralized record keeping and the ability update and deliver content instantly to all sites.

Training departments will be able to do more with the same resources. Repetitive, compliance training can be automated freeing up other resources for more demanding training assignments. Record keeping can be streamlined and made so efficient that no one need ever be out of compliance again.

Employee-learners benefit because e-Learning is “learner centered.” That means training occurs when it is most convenient to the learner, at a pace of his or her choosing.

## **Before Moving Forward**

### **An Alternative to Buy or Build**

Knowledge-Forge, Inc., is unique among e-Learning vendors because they provide both the infrastructure and content, in the form of classes that were designed with input and collaboration from other Blood Banks.<sup>10</sup> This combination of product and service means Blood Banks may purchase as much infrastructure as they need, and instead of developing training programs from scratch or hiring expensive developers to do it for them, they can tailor the existing programs to the exact needs of their Standard Operating Procedures. In essence, this alternative to buy or build offers highly tailored content at off-the-shelf prices.

### **The Blood Bank & Healthcare Co-Lab**

Knowledge-Forge, along with many of its existing customers has developed a unique membership organization that exists for the sole purpose of facilitating the collaboration of training content between blood banks and other healthcare facilities. For a small membership fee, a blood bank can take advantage of a growing library of blood bank- and healthcare-specific courses ready to be tailored and edited for use in facilities that otherwise would never have the means to develop them on their own.

**Knowledge-Forge, Inc**  
5412 Idylwild Trail – 108  
Boulder, CO 80301  
[www.knowledge-forge.com](http://www.knowledge-forge.com)  
[information@knowledge-forge.com](mailto:information@knowledge-forge.com)

---

<sup>10</sup> Knowledge-Forge, Inc. offers a unique combination of infrastructure and tailorable content providing site-specific content at off-the-shelf prices.