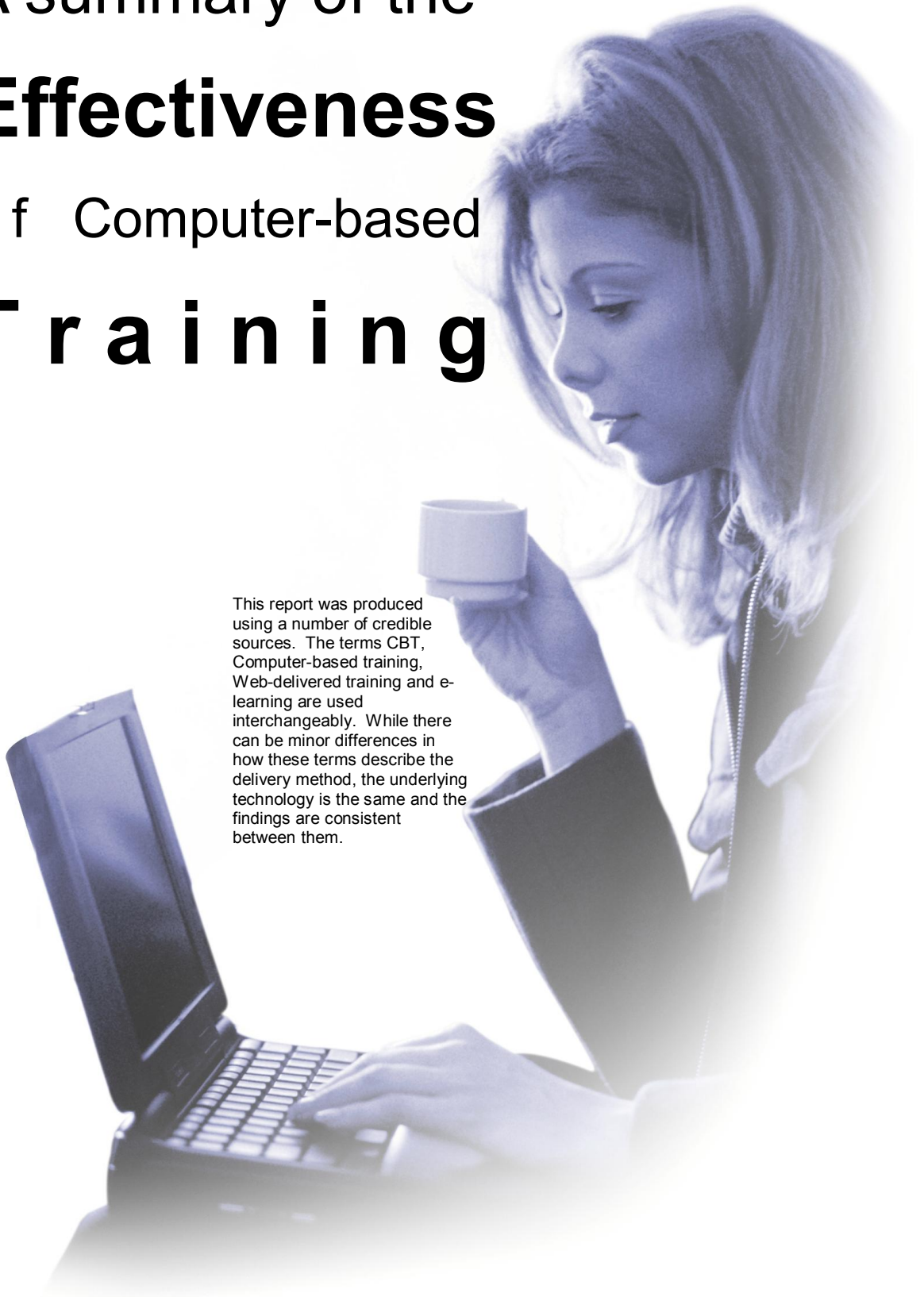


A summary of the **Effectiveness** of Computer-based **T r a i n i n g**

This report was produced using a number of credible sources. The terms CBT, Computer-based training, Web-delivered training and e-learning are used interchangeably. While there can be minor differences in how these terms describe the delivery method, the underlying technology is the same and the findings are consistent between them.

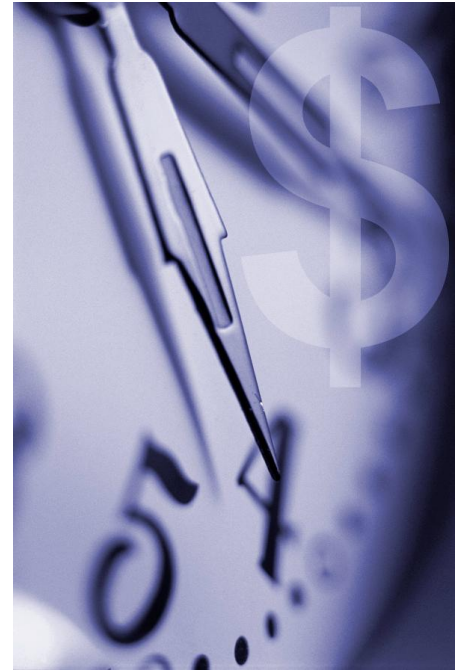


Primary Benefits of CBT

Since the 1960s there have been numerous studies conducted to measure the effectiveness of computer-based training (CBT).

Consistent findings include:

- The multimedia (CBT) approach **saves time** – anywhere from 25% to 50% or more. Most studies report a 35% to 45% decrease in training time to the same level of competence based on retention (remembering what was learned) and transfer (using what was learned).
- There is very strong evidence that CBT **reduces the actual cost** of training when compared to instructor-led training. The total cost of training included cost of development as well as the cost of delivery. The lower delivery costs result primarily from a reduction in training time and the elimination of travel.
- **People learn better** with multimedia training because they remember what they learn more accurately and longer (retention) and they are better able to use what they learn to improve their performance (transfer). Across many different studies and reports from military, education and industry sources, Fletcher (1990) cites 15% to 25% increases in learning achievement.
- None of these studies and meta-studies reported a decrease in training effectiveness (**retention and transfer**) as a tradeoff for decreased time. In fact, nearly all writers reported substantial increases in learning.



References

- Rex J. Allen, (1997, March/April 1). "It's A Circus Out There!" CBT Solutions.
- J.D. Fletcher, (1990, July). "Effectiveness and Cost of Interactive Videodisc Instruction in Defense Training and Education." Washington, D.C.: Institute for Defense Analyses.
- Brandon Hall, (1995). Return-on-investment and Multimedia Training: a Research Study. Sunnyvale, CA: Multimedia Training Newsletter.

Real-World Benefits of CBT

Companies, governmental organizations, and educational institutions agree that Computer-based training offers numerous real-world benefits. Following are some of the frequently mentioned benefits of CBT:

Proof of training

Courses can be designed to keep track of each learner's progress. Learners can use this as a record of achievement and can print a certificate of Completion after mastery is demonstrated. Proof of training is often required for legal reasons.

Increased demand does not increase cost

Once developed, the CBT can be used by any number of learners without a proportional increase in cost.

Cost effectiveness

Group classroom training takes time, and lots of it. Studies show that computer-based training reduces training time by as much as 48 percent. Slashing training time, eliminating travel time and expenses for learners and instructors, and reducing facility and delivery costs all translate into significant improvements in training cost effectiveness.

Instructional consistency

The training presented is consistent from training session to training session and from site to site, throughout the entire organization. This helps you meet compliance and legal requirements.

Instant updates

Web-delivered CBT can be updated easily, ensuring consistently up-to-the-minute training company-wide. When policies change, the training can change.

Availability

CBT is available 24 hours a day, seven days a week. Training can be easily schedule around production demands and learners' work schedules. This often eliminates the need for overtime to conduct training.

Self-paced learning

Learners familiar with the material presented can quickly progress through modules while those inexperienced can take more time and study at a slower pace. By adding a pretest, experienced learners can "test out" of material they already know, saving time and eliminating frustration.

Interactivity

The interactive nature of well-designed CBT engages the learner as an active participant in training. Immediate feedback to learner interactions will quickly correct misconceptions or reinforce correct understandings.

What the Learners Think

It's important to know how the actual users of a computer-based course feel about the technology.

Following are some results from a survey given users of online CBT:

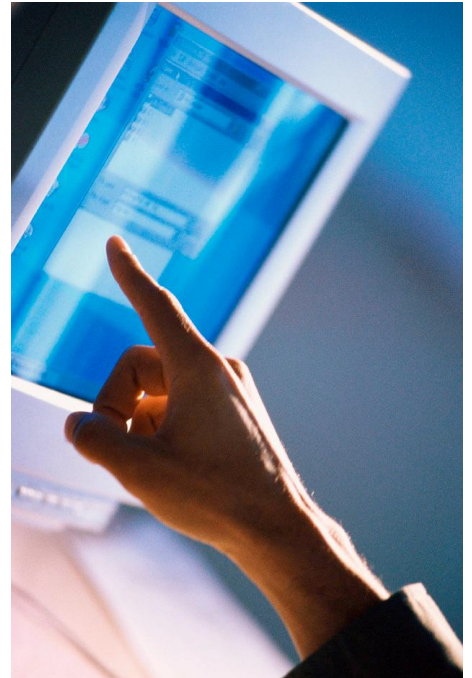
- 86% of learners appreciated the increased access CBT offered
- 66% felt that CBT contributed to their employee skills and increased job performance
- 75% reported that their organizations were committed to offering e-learning to employees

Source:

Curtis J. Bonk, Ph.D. "Online Training in an Online World" Jan. 2002

Rivertown Communications, a business partner of Brost & Associates Solutions has designed and developed CBT since 1992. Their observations are similar to Bonk's study and include:

- Learners overwhelmingly prefer CBT to text-based courses
- When a choice between classroom course and a CBT course covering the same material were offered to a learner group, the group picked the CBT by a wide margin.
- While developing a training series for a 2,500-person field sales organization, it was observed that the sales people preferred classroom training because of the social aspects. However, when it was pointed out that the shorter training cycle of CBT would allow more time for selling, the preference shifted strongly to favor the CBT. The final training plan used CBT as the main delivery method to save costs and time, with a yearly classroom session to allow for the socialization.



Success Stories

Many organizations report substantial savings from their initial forays into web-delivered CBT.

Consider:

- **Buckman Laboratories** reduced the costs of training employees to use e-mail and other technologies. Costs fell from \$2.4 million to \$400,000 when Buckman switched to online training.
- **Hewlett-Packard** cut the cost of training 700 engineers on a new chip from \$7 million to \$1.5 million. The training was performed in 30 days instead of the year projected for on-site classroom training.
- **ASK International** replaced a weeklong classroom course providing product knowledge to sales representatives with a six-hour course made up of self-paced materials and an onsite workshop. The costs dropped from \$2500 per learner to \$500.
- **Eli Lilly & Company's** Web-based training program saved the company \$800,000 in travel and salary costs over classroom training during the new program's first year.
- **MCI WorldCom** used online training to save \$5.6 million in 1998.
- **MCI WorldCom's Career Enhancement University (CEU)** (a virtual classroom), saved the company \$2.8 million in travel, facilities, and salaries (\$1500 per learner). As of June of 1998 CEU had trained 3,825 students in 369 classes. These savings resulted from an investment of \$300,000 in communications infrastructure and 3200 person hours of development. As of October 1998, CEU had produced a 237 percent return on investment.
- **MCI WorldCom** used its virtual classrooms to train 7000 network technicians at 800 locations.
- **Aetna** saved \$3 million by using online training to educate 3000 employees. Online learners achieved 4% higher levels of expertise than those in traditional training.
- **Cisco** reduced the \$1200 - \$1800 cost per learner of instructor-led training to \$120 with web-based training.
- **Novell** was able to cut the cost of Novell certification from \$1800 to \$900 using web-based training
- **MetLife**, was able to train 9000 field sales representatives to use a new computer application for \$30 each.

Reference: Wm. Horton "Designing Web-Based Training" Wiley 2000

Results of CBT developed by our business partner, Rivertown Communications.

- **K-Sun Corporation** reports saving over \$100,000 per year on customer education expenses. CBT is replacing the time-consuming process of educating K-Sun's client base on the use of their line of advanced labeling systems. This training is allowing customers to become qualified users of the equipment much faster. It is also converting prospects into customers by educating them on the benefits of the K-Sun equipment.



- **Land O'Lakes'** country managers report that CBT bi-lingual training on food safety topics is making a substantial positive difference in third world countries. For example, the "Diagnosing Food Induced Illness" module is training the layperson to separate fact from fiction when evaluating the cause of apparent food induced illness. This critical skill is essential in the administration of school feeding programs and is making a real difference in protecting the food provided to school children worldwide.

Land O'lakes, Inc.

- **The 3M Company** reports that greatly increased access to "just-in-time" training and improved certification tracking has been the result of a safety-training CBT course developed for their chemical plants nation-wide. The "Contractor Rep." training program is provided to all outside contractors entering the grounds of a 3M Chemical plant. It trains them on the unique, potentially hazardous, conditions found there. This training is essential to worker and plant safety.



The Bottom Line

It has been suggested that training departments should really be called “performance improvement departments”. **Well-trained employees are much more productive and find their work experience more fulfilling.** Training makes a real difference in the performance of companies. Researchers Dr. Laurie Bassi and Daniel McMurrer have calculated that a stock portfolio of firms made up of companies that commit more than an average amount of money to training would have returned an average of 45% more than the S&P 500 index annually.

Assuming your organization is invested in well-trained employees, the next step is to determine if CBT or traditional classroom methods are the best option. Brost & Associates Solutions will work with you to develop a training program that meets your needs.

Brost & Associates Solutions can provide you with a no-obligation estimate of your training development costs.

Factors we consider include:

- How many people need to be trained?
- Will they need to travel to attend a class?
- How many times will the proposed course be repeated?
- Are classroom facilities available?
- Are all learners starting with an equal skill level?
- Will the course need to be updated?
- Are there scheduling problems associated with training large groups at a fixed time?
- Are assessments of comprehension and records of mastery important?

Generally, a CBT course costs more to develop than a classroom course, but these costs are rapidly recovered once delivery of the training begins. Additionally, the ability to deliver a CBT course to an employee’s location, with a schedule that works best for them, means that a greater percentage of the employee base can complete the training, and complete it in a more timely fashion.

Contact Brost & Associates Solutions for your training needs. Call 920-886-9805 to schedule a consultation.