

E-Learning

Myths and Realities for the IT Professional

Researched and written by Kim Baker

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Foreword

E-learning proponents have alternatively claimed that the technology allows IT training to be less expensive or more effective than live training alternatives. The fact is that these claims have always been based on nothing more than wishful thinking. Objective studies show such claims to be outright myths. But for many, it's difficult to separate the hype from the reality. The idea certainly sounds nice – learn anywhere at any time – however, the reality is that companies and individual students who choose e-learning as a training solution are elevating their risk of failure. This report provides detailed, fair, and balanced information that will enable you to objectively evaluate e-learning solutions.

Studies show that e-learning solutions require a much greater time commitment than classroom based alternatives and that student productivity upon return to the workplace suffers exponentially. The Thomson Job Impact Study, published in February 2002 by Thomson NETg, reports that *students who participated in hands on training “performed with 30% more accuracy” and “performed real-world tasks 41% faster” than those whose training was technology-based*. In other words, e-learning produces employees who are slow and make a lot of mistakes.

E-learning companies advertise that their solutions are more cost-effective than hands on, classroom-based training. A startling number of companies who have spent money on these solutions disagree with these claims. A 2003 study conducted by the Chartered Institute of Personnel and Development found, *“half the companies questioned felt that the technology had been over-hyped, with a similar number saying that there was the potential to waste a lot of money.”*

Of all the stated benefits of e-learning, one of the most consistently hyped has been its potential for high personalization. Adult learning expert Stephanie Burns, who has studied online learning since the 1980s, states in an 2001 interview with Financial Review, *“People are bored out of their brains and the interactivity provided by online mentoring, online seminars and chat rooms does not address the problem of getting people motivated to stay online to learn.”* Students turned to e-learning, in part, because they wanted a customized experience. They didn't want to be another face in the crowd as they might have been in a college lecture hall. And, unfortunately, they haven't gotten what they were looking for.

Ultimately, truthful statements about e-learning's capabilities provide powerful arguments against the technology. Certainly e-learning provides educational content that is available to students anytime and anywhere. But, is that what students truly need or want? Patricia McCormick, a project leader at IRS School of Information Technology in

Austin, Texas, says of her students, “***Rather than self-paced e-learning, they wanted contact with live human instructors... Given a choice, they do prefer social contact.***”

Michael Brennan, co-author of a 2001 IDC e-learning report, pegged the latest trend in e-learning in an interview with PC Magazine’s Rachel Fielding that year. Brennan said, “***People have tended to see e-learning as a panacea, but now they realize that it's really an additional extra.***” The latest trend, now that it has become almost universally obvious that the technology does not work as a stand-alone solution, is something called “blended learning,” which aims to mix hands on and technology-based training. The reality is that the delivery technology is not important and does not determine success or failure – social interaction, well structured hands on exercises, expert facilitation, and instructional excellence do. The addendum to this report identifies these and other critical characteristics of effective IT training that will save you money, eliminate risk, and assure the success of your training programs.

E-Learning

Myths and Realities for the IT Professional

Introduction

The impact of e-learning on today's companies has been touted as being potentially enormous. By providing personalization of courses, anytime/anywhere learning, more effective training and an increase in productivity, e-learning has been positioned by advocates to provide training without the costs and constraints of live, instructor-led training.

The major factors limiting the effectiveness of e-learning as a delivery mechanism for IT training are the lack of social interaction and the difficulty of coordinating supervised, hands on practice. Any cognitive psychologist will affirm that social interaction increases retention dramatically. Educational psychologist William Glasser summarizes by claiming we learn and remember:

- 10% of what we read
- 20% of what we hear
- 30% of what we see
- 50% of what we see and hear
- 70% of what we discuss with others
- 80% of what we experience or practice

E-learning providers asserted that the human touch elements of effective training can be incorporated into e-learning solutions via interactive technology such as streaming audio and video, video conferencing, assessments, threaded discussion, message boards and online tutors.

Unfortunately, the limitations imposed by available Internet bandwidth make these interactive solutions totally impractical, except for limited course and product demonstrations. Faced with garbled sound and visuals, time-consuming downloading of content and slow response time, users are typically forced to turn off this type of interactive multimedia due to restrictive bandwidth. Unfortunately, when these technologies are omitted, e-learning is effectively reduced to "e-scrolling."

Additionally, most of this interactive technology that is intended to provide the human touch elements of e-learning, if actually implemented, would make the cost of developing and implementing these courses prohibitive. Industry estimates are usually expressed in

hours. It takes 150 to 750 man-hours to develop an hour of finished product. E-learning advocates affirm that the cost to develop e-learning solutions of acceptable quality ranges from \$15,000 to \$75,000 per hour, depending on quality and feature set. The promises of e-learning become its limitations: personalization, anytime/anywhere learning, effective learning and increase in productivity are extremely costly to successfully implement for complex training topics. And for IT training, the issue of appropriately supervised labs cannot be effectively addressed using any technology.

Today most organizations are using some form of e-learning, to disseminate product information, share company news, support change, or train employees on specific skills. But before jumping on the e-learning bandwagon when it comes to IT training, every company should conduct a true analysis of the perceived benefits of e-learning for skill-based, complex training.

Lacking an instructor to assess and assist, e-learning places a great deal of reliance on the mechanics of training to monitor student progress: assessment testing, tracking mechanisms and prerequisite matching. This has ultimately caused e-learning providers to focus on the method of delivery as opposed to the actual content that is being delivered. As Roger Schank, CEO of Learning Sciences Corp., points out, ***“I went to Northwestern and started ILS because I was offered money to build educational software... That was in 1989. We built a lot of educational software at ILS, some for kids, but mostly for corporations who could afford to care about their new employees.... We invented new tools and new designs and created what we believed to be very exciting stuff. Then things got worse. Someone came up with the notion of ‘e-learning.’ Now every company that had training needs was suddenly directed by their CEO to move to e-learning. What this means in effect is a step backwards in a reform movement that was just starting to move forward. The idea in most companies now is that all learning should be web delivered. That’s kind of like a new company saying that all of their products will be delivered by Fed Ex instead of UPS. Yes, but will the product be good? Its delivery vehicle would seem secondary...”***

“Let’s get our courses on the web means ‘Let’s take a lecture course, let’s eliminate the lecture – leaving only the notes, the readings and the quizzes – and let’s call that a course.’ Here we go again, a step backwards in modern education. Just as universities were beginning to realize that one guy droning on in front of 500 students was not quality education, they propose to eliminate the human and leave the quizzes. Nevertheless, there are now many companies offering courses online and many universities willing to endorse what they offer as being of actual educational value. Frightening, really.”

This report will examine five e-learning myths and realities with emphasis on IT training courses; why instructor-led, live training classes can be more productive and cost-effective for your company's IT department; and finally, the six criteria you should ultimately use, regardless of delivery vehicle, in selecting the right software skills training for your IT professionals.

E-Learning Myth #1: E-Learning costs less than live training.

The most frequently cited benefit for e-learning is cost-savings. With the elimination of travel, instructors, and perhaps even employee time away from work, e-learning vendors continually claim they can provide companies with enormous cost-savings, in addition to increased training support. For example, in a recent advertisement, DigitalThink uses cartoon figures to claim that by using DigitalThink's e-learning solutions, companies can train 25% more employees while reducing training costs by 75%.

Reality:

The numbers published by e-learning advertisements and articles can be extremely misleading. Using a series of courses on Microsoft Exchange 5.5 Server as an example, industry training experts expect the average IT professional to take approximately 36 hours to complete this type of training. DigitalThink, a leading e-learning company, offers their complete series of classes for \$1150 or about \$32 per training hour.

While DigitalThink's series includes access to threaded discussions and messaging with other students, students can wait up to 24 hours to have questions answered through email by "tutors." Who these tutors are and what experience in the IT industry they bring to the table is not explained. Students do not have immediate access to the qualified, live support that is needed when it comes to complex skill-building. This increases training time, introducing added cost.

Jim Cross, an authority on e-learning, states, ***"Companies that adopt e-learning as a cost cutting measure and provide no human support will not be successful."***

As a comparison, Hands on Technology Transfer, Inc., a national provider of live training courses, offers several five-day training programs via small, task-based, instructor-led classes. These public training classes cost just a few dollars more per hour than e-learning alternatives. If the classes are held for groups with twelve students attending, the cost drops to under \$200 per day (\$25 per hour per student) and is less expensive than its e-learning counterparts.

The attached chart provides a comparison of several live training and e-learning providers. As the chart shows, when analyzing the cost per hour of IT training, e-learning does not significantly reduce a company's training budget. In fact, in many cases, e-learning will actually raise the cost of training. When the additional student training time and additional investments in technology needed to make e-learning successful for employees is taken into account, e-learning almost never looks cost competitive.

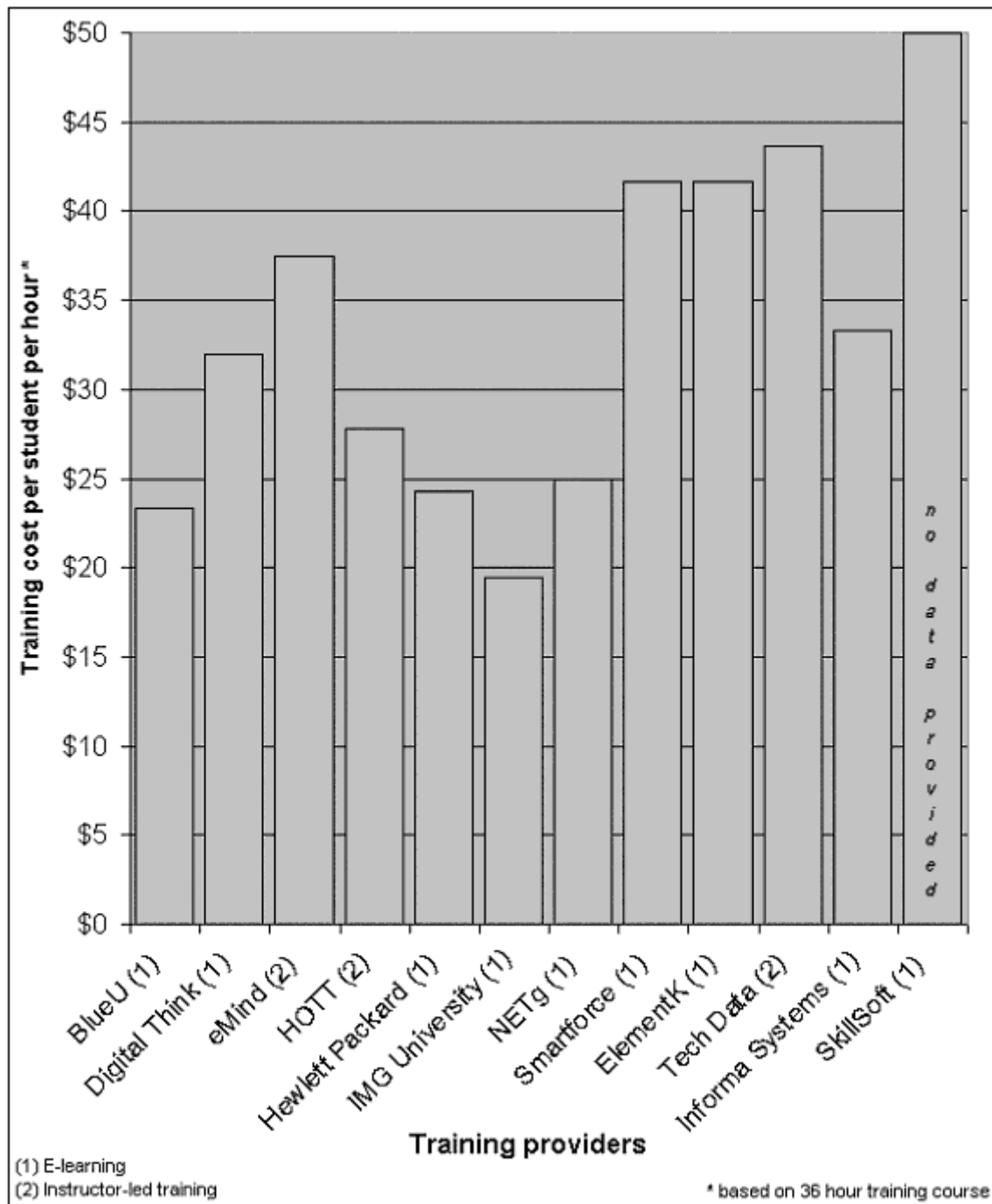
As an example of the cost structure for e-learning course development, Mr. Vitkus, the Director of Instructional Services with Wizdom Systems, an e-learning developer, states that a well-designed course includes ***“lots of practice and exploration activities.”*** He goes on to say that a good one-hour course is about 130 frames and would take almost 200 hours (five man-weeks) to develop. In order to develop the 20 “courses” that would simulate a full week of live, IT training it would take 100 man-weeks, costing about \$300,000 by Vitkus' estimate.

Jay Bahlis, President of BNH Expert Software and an e-learning advocate, estimates that to create an e-learning experience employing complete interactive multimedia would involve approximately 700 hours of development for one hour of finished product. With the shelf life of IT technical material bordering on six months to one year, this means e-learning would have to be delivered about 50 to 100 times more often than a comparable live training class to be cost competitive. It is unlikely that e-learning providers can achieve these kinds of economies of scale to make their products more cost-effective than live training for IT skills classes.

A sample advertisement from Knowledge Management Solutions lists an annual license fee of \$100,000 for their “Learning Management Solution.” It then lists an additional \$60,000 for “annual software and usage fees.” In other words, you pay \$160,000 a year before you train a single student. So let's suppose that e-learning costs as much as 25% less per student to deliver; you've got to train 1250 students before you even start to break even on the training cost. And now you're stuck with 1250 students who are slow and make a lot of mistakes.

While e-learning should be viewed as an additional training resource, the questionable cost benefit, coupled with the undeniable reduction in educational value for IT training topics, does not justify replacing live training with an e-learning solution. Roland Van Liew, President of HOTT, Inc., flatly states that ***“In any situation involving multiple students, we come in at least 20% less expensive than e-learning, with all kinds of quality and cost guarantees that e-learning providers cannot and will not match.”***

IT Training Cost Comparison



E-Learning Myth #2: Courses can be highly personalized – tailored to individual learning styles and problem domains.

Another purported benefit of e-learning is user personalization. Many e-learning companies promise user personalization through use of various e-technologies such as online knowledge assessment, multiple learning paths and tracking mechanisms.

Reality:

In a recent study conducted by Campaign for Learning and KPMG “aimed at examining practices and attitudes towards e-learning,” 43% of employers stated that e-learning was tailored to fit individual employee’s learning needs. However, in the same study, only 7% of employees (the actual users) claimed they felt e-learning courses could be tailored to fit their learning needs.

Peter Honey, the study’s expert on learning and behavior, points out ***“Churning things out on a hit or miss basis, but on a screen instead of paper, and maintaining that it caters for people’s needs, simply will not do.”*** Technology certainly exists to allow users to select from various learning styles and content preferences, but the implementation of e-learning products using these technologies would dramatically increase the cost of the content. Some companies use excellent content management and alternative content selection for their demos, but we could find none who implement actual product using these expensive techniques.

A former vice-president of product development for a major e-learning vendor makes this observation: ***“It’s like the old joke: A man dies and goes to the Pearly Gates, where St. Peter says he can choose between going to heaven or hell. St. Peter shows him an image of heaven that makes it look pretty boring, and shows him an image of hell that includes sunny beaches, attractive people, and cool tropical drinks. The man chooses hell, and is surprised when it turns out to be eternal torment. He confronts Satan, saying, “Hey, that’s not what St. Peter showed me!” Satan of course replies, “Well, that was just the demo!” Likewise, I have seen numerous cases where the e-learning demo shows highly interactive learning, high production values, and multiple learning paths, but when I paid for a whole course, I got pages and pages of dull scrolling text, with no production value, trivial interactions, and a single, unchanging learning path.”***

On the other hand, reputable, live training companies will provide instructors who know the questions to ask of the training departments and managers to make sure that the appropriate learning style is used to achieve the best results for the trainees. Roland Van Liew, President of Hands On Technology Transfer, emphatically states, ***“Any live instructor worth his/her salt will determine the level and background of each student***

and then tailor the course to maximize insight and retention. That includes focused attention during the hands on labs – often more important than the lecture presentations. And live training sessions are always focused to the needs of a client corporation when delivering training at their facility.”

In addition, most e-learning companies estimate it will take up to 80 hours to finish system administration courses that, in a live environment, can be completed in 32 to 40 hours. E-learning personalization *should* allow users to move more quickly through material using their preferred learning style, as well as eliminate topics they are already familiar with. If e-learning companies were using any sort of personalization functionality, one would assume fewer training hours would be necessary, rather than double, when compared to live training.

E-Learning Myth #3: E-learning means anytime/anywhere learning.

“Anytime/anywhere” have become buzzwords for e-learning’s perceived efficiency and time management benefits. Because users have immediate access to training 24/7 via the Internet, usually from both work and home, the assumption is that it will be easier for them to flexibly implement a learning solution for themselves. ***“E-learners are responsible for their own learning. E-learning empowers them to manage and implement their own learning and development plans.” (ASTD, e-learning FAQ)***

The assertion is that employees can choose the appropriate time to start and finish their training, without the constraints of a specific class time. As Roger Schank, CEO of Learning Services Corp., asserts, ***“Humans may be able to teach better than computers, but that is not always practical.”*** If the user is too busy during the workday, training can be done at home, during downtime. Typically, e-learning companies allow users anywhere from six months to one year to complete a technical training course.

Reality:

28% of respondents in a recent survey indicated their employers consider training to be crucial to the success of their organizations (Bill Detwiler, TechRepublic). Unfortunately, regardless of the best intentions, the majority of employees are not self-directed learners. Learning is most difficult to sustain when it is discretionary and tackled as a solo pursuit, which is exactly what e-learning’s “anytime/anywhere” benefit advocates. By formalizing this ad hoc approach to training through the adoption of e-learning solutions, companies are not only adding additional stress to their employees, they are also putting the advantage their company gains through training at great risk.

Peter Honey, a leading authority on learning and behavior, states: ***“The more convenient it [e-learning] claims to be (anytime, anyplace), the greater the onus on each individual to be sufficiently disciplined to find the necessary space and time. Frankly, it is unrealistic to expect busy people, struggling to cope with their daily routines and the pressure of deadlines, to be responsible for carving out sufficient learning time. Most workplaces are not learning friendly and, the more organizations take the view ‘it’s up to you,’ the more likely it is that learning will get squeezed out and become one of those things it is assumed just happens naturally and/or that people are supposed to do in their own time.”***

It may seem more convenient to allow students to schedule their own training activities, but that is not always practical. Module (“course”) tracking and student management systems become critically important. Some companies have had to resort to threats (salary reductions, loss of promotion opportunities, even termination) to prod staff to complete their assigned e-learning training activities.

It is tempting for an employer to define “anytime/anywhere” to be in “magic” time, outside of regular working hours. Employees, already stretched thin, can become pre-occupied and angry with trying to find the appropriate “anytime/anywhere” to complete their training. Or they may just give up when having to decide among work deadlines, family obligations and training. Or they may resort to cheating. At one large software company (over \$2 billion annual sales), employees all the way up to the Senior Director level organized large-scale sharing of test answers – an explicitly forbidden practice – to allow employees to fulfill their e-learning requirements without infringing on precious work time.

Any organization that truly values training and its benefits should expect to designate blocks of time in a structured, productive atmosphere for training. Live, hands on training provides the structure and the motivation for employees to complete necessary training, without having to prioritize training with respect to ongoing work and personal time. A live instructor provides additional motivation and the classroom environment provides the social interaction needed to make the training more engaging and boost retention.

E-Learning Myth #4: E-learning is more effective and leads to greater retention.

The Internet and its offshoot learning technologies – virtual tutors, message boards, threaded discussion, instant messaging, online study groups – are touted as having revolutionized learning. Users supposedly have access to a variety of interactive resources, depending on their needs, to successfully enhance their learning experience.

Reality:

Colin Grant is the former Vice President of Product Development for CBT companies Hands On Learning and J3 Learning (now part of Thomson NETg), and currently is the Director of Training for Hands On Technology Transfer, Inc. He states:

“This belief that e-learning is revolutionary never ceases to amaze me. If you spend a few hours searching through academic treatises published in the 1900s, you’ll find that every new technology was supposed to revolutionize learning. First the gramophone, then the radio, then television, slide strips, overhead projectors, audiocassettes, home video, CBT, and now e-learning – every one of them was supposed to democratize learning and make education and training instantly available to everybody. And every one of them turned out to be nothing more than a nice niche player – a nice little adjunct to real learning, which of course, takes place in the classroom and the lab. There’s no getting around it – that’s how human beings learn!”

It is a well-established fact that social interaction and supervised, hands on practice increase training retention by a factor of two. Both of these aspects of training are missing from e-learning. In a recent study by Forrester Research, respondents identified lack of interactivity 56% of the time as the most common obstacle to a successful e-learning strategy. In a similar survey, conducted by Bill Detwiler of TechRepublic, 56% of respondents cited live instruction as the most effective method of training compared to e-learning, software and books. Only 12% said online resources were most effective for them. Users, who have been promised a high level of support and interactivity, are often disappointed with scrolling through page after page of information, which was originally intended for live instruction, but was transposed into HTML format and presented as “interactive” e-learning. In the study conducted by Peter Honey, Campaign for Learning, and KPMG, 57% of respondents’ comments were negative with regard to the actual experience of e-learning, claiming the experience was “frustrating, lonely and stressful.”

Once again, cost is the major factor gating quality. ***“It is easier and cheaper to produce pages of scrolling text than to produce highly interactive and engaging educational material. It is easier and cheaper to produce trivial tests and interactions than complex and challenging ones. So, while the demo is often so impressive, you’ll often find that by module 4 of an 8 module course, the viewer is nearly paralyzed with boredom and looking for a noose – or at least a career change,”*** says industrial training expert Colin Grant.

E-learning companies frequently send letters to companies that provide hands on, instructor-led training in order to form partnerships. Here is a quote from one such letter:

“This partnership will give you an opportunity to provide your clients with our web based training solution... Using our local express studio, you can convert your training content into our format as well as put your logo on our pre-existing library of content and resell it to your clients.” The company’s only goal is to provide clients with some kind of e-learning solution, without paying any regard to the appropriateness of the content as web-based material or the level of interactivity needed for a successful learning experience. Henry Stewart, chief executive for Happy Computers, a London-based, IT training company, points out, ***“Training...is about building skills through active involvement and interaction. Training is about doing it.”*** Clearly, in an e-learning environment where there is no consideration for interaction, feedback and skill building, training is not going to be productive or effective. Lab work is a particularly important element of IT training and is completely ignored in these kind of packaging partnership offerings. To recall Roger Schank’s comment, to these companies, ***“Let’s get our courses on the web means, ‘let’s take a lecture course, let’s eliminate the lecture – leaving only the notes, the readings and the quizzes – and let’s call that a course.’ ”***

At the end of the day, what it means for training to be “effective” is that competency and retention be the end results. There is no evidence that e-learning provides increased competence or increased retention compared to live training solutions. In fact, studies show the opposite. Internet bandwidth issues force many e-learning participants to omit video or even audio reinforcement, driving down retention and turning e-learning into little more than an online textbook. When audio and visual techniques are used, as in the best e-learning, retention of the material is in the range of 40%. When personal and social interaction are added, as occurs with live training classes, retention rises to 70% to 80%, depending on the hands on lab experience provided.

E-learning providers are cognizant of this glaring disparity in retention between self-study and instructor-led training, and have begun offering self-styled “blended” solutions. A blended solution is intended to include some component of live instruction in the form of “coaching.” But in reality, this “coaching” consists of two components: the ability to send e-mail and get a response within 24 hours, and the ability to call a phone number and speak to an unspecified resource person during certain times of the day. This – the sending of e-mail – has been euphemistically re-titled “e-coaching” by e-learning providers; live training providers still refer to it as “e-mail.” And, while any reputable live training provider offers 24-hour e-mail response turnaround, it is such a minor element of the learning process that it is never mentioned as an “advantage” of taking a live training class. With e-learning, the live phone number and e-mail contact are only valid for the formal time period allotted for a student’s use of the e-learning product. For live training, the live phone number and e-mail contact are always available, and in the case of firms such as Hands On Technology Transfer (HOTT), there is no time limit on when former students may call or e-mail to obtain clarification or get questions answered.

The necessity for such calls is so limited after live training that it is not necessary for live training companies to limit the access of former students.

Colin Grant's assessment: *"Ultimately, e-learning providers have taken a mundane service that is always available from live training companies – phone and e-mail communication – termed it 'blended learning,' and positioned it as a pedagogical advance for the ages. Indeed."*

E-Learning Myth #5: E-learners complete training in less time and become productive more quickly.

E-learning providers claim the flexibility of e-learning allows users to complete training more quickly and become more productive than would otherwise be possible.

Reality:

A leading e-learning information website states:

"E-learning is too new to have produced hard evidence of learning gains. E-learning's top-line upside is speculative; its bottom line savings are on more solid ground."
(ASTD, e-learning FAQ)

"E-learning's top-line upside is speculative" because the majority of e-learning companies focus on "e-reading" as their web-based solution, so employees may or may not be ready to apply the necessary technical skills immediately upon completion of the training. George Roughan, president of Chimera Solutions, a California-based, educational-software developer, asks, ***"Would you want your doctor to learn solely by reading?"*** Mr. Roughan finds irony in the presumption that ***"anyone can gather text, put it on the web, add a few questions and create a quality educational experience. We wouldn't for a moment accept this from our public schools, so why is it acceptable in corporate education?"***

Not only is the educational value of e-learning questionable but the statement that ***"its bottom line savings are on more solid ground"*** is speculative as well. Most e-learning companies, in order to decrease the perceived cost per hour of their courses, have to double the number of hours they say are needed to complete the course compared to similar, live training. So in a case such as Microsoft system administration courses where a live course might take 40 hours, or one week, to complete, a similar course taken via an e-learning solution is positioned by the provider as taking 80 hours to complete. Additionally, e-learning providers typically allow users six months to one year to work through the course. In terms of training variability and predictability, in a live course, if

there are 40 hours of instruction, that is how long the class is going to take. But with e-learning, studies show an “hour” can range from 45 minutes to 75 minutes; in other words, it is going to take some employees twice as long as others to finish the course. It is a *real cost* in terms of time spent not being able to work together if an employee takes longer than others to finish the training.

The most important cost is lack of competency. The only way to assure competency and productivity improvement upon completion of IT training is to have students perform tasks in a hands on lab setting with appropriate supervision. Any e-learning solution that provides this kind of experience has morphed almost completely into what it is trying to emulate: live training.

Conclusion:

From Joseph Konstan, a teacher and computer scientist:

“[With regards to e-learning] an analogy comes to mind. I loathe drive-thru windows at fast food restaurants. Why? Because easy things to do inside become hard at the window. The awkward microphone makes it harder to place a special order (please give me extra lemon and two packets of sweetener), and until a few recent developments, impossible to tell whether it was being followed. The drive-thru doesn’t let you see whether the food has been sitting forever or is fresh, and it makes you feel rude checking your order while people wait behind you. Some may find the convenience worthwhile. Some people always order #3, and are happy with it. But I would rather take it a little slower and get what I want.”

Typically, e-learning courses do not produce the same learning benefits that result from instructor-led training, and more importantly, fail to significantly reduce training costs. Unless there is a serious cost advantage, why would an IT department choose an e-learning solution? This question has not been adequately addressed by any study or any e-learning vendor’s IT training products.

The adoption of e-learning as a training solution is a response to some deeply felt problems in industrial training, including IT training. Intransigent problems that on the surface might appear easier to solve with e-learning than with live training include travel cost control and travel restrictions, infrequent course scheduling, course cancellations, and the danger of inconsistent quality. But excellent alternative solutions exist with live training approaches from a vendor like Hands On Technology Transfer. These live training programs provide superior results at a price point competitive with e-learning, while addressing the problems that are frequently cited as reasons to consider e-learning in the first place. The next section explains product characteristics that determine

whether your training vendor can provide the value, convenience, and consistency needed for truly excellent IT training solutions. Roland Van Liew, President of HOTT, asserts, ***“The way to deal with inconsistent instructional quality or lab equipment snafus is not to remove the instructor and the labs! The solution is to assure quality, and this is not hard to do if you take a few simple steps when selecting a training vendor.”***

Given that the goal is new competency and a high ROI for investment in training, it is important to assure that any training program you invest in will provide the competency-building, productivity-enhancing results that are expected. The best way to avoid the problems that can plague any complex training curriculum is to learn how to assure excellence, not to move to a solution that provides the appearance of training but does not deliver real competence. The report addendum identifies six specific characteristics of excellent IT training that you can use to evaluate proposed training solutions, whether live or technology based, in order to assure that they will provide the expected benefits.

IT training poses special problems, in that expert assistance is necessary at many critical junctures during the learning process for most students, both to answer questions and to help the students overcome problems encountered while actually performing labs. In almost every case, regardless of a particular student’s learning style, live hands on classes will provide superior competence and retention compared to e-learning alternatives. E-learning provides no cost advantages, and if it employs multimedia approaches and online tutors can be significantly more expensive than lecture-lab formats. To date, the deployment of online tutors consists almost entirely of e-mail, euphemistically termed “e-coaching.” 24-hour response to e-mail is not exciting to students learning complex IT skills and wrestling with lab problems. ***“The use of the word ‘coach’ for online communication is disingenuous,”*** states Mr. Van Liew. ***“Coaching conjures up an image of a person physically present, guiding in real time. Can you imagine a soccer coach answering questions about foot position, proper teamwork, or errors in judgement with 24-hour response to e-mail? Live instructors perform real coaching during labs. It’s called facilitation; it’s not reactive, like e-mail or phone responses.”***

When it comes to IT training, e-learning can serve a useful purpose in providing remedial training for students who may not meet fundamental prerequisites for an upcoming curriculum, or for providing post-training review. Unfortunately, many employers and universities cannot afford the relatively high cost of this formal assessment and review using e-learning techniques; it seems likely that they will continue to rely on the remedial help and assessment provided by instructors during live classes. The danger to the learning process is that, if directed to deploy e-learning, IT and training managers with limited budgets will be tempted, if not forced, to position e-learning as a total training solution, shortchanging students and their own industrial enterprise.

Training Comparison Chart

E-Learning	Desired Attributes	Instructor-Led, Hands-On Training
Competence not assured; online tests primary assessment mechanism	<i>Guaranteed development of competency</i>	Competence can be tracked and assured via completion of hands on practice and instructor assessment
No guarantees	<i>Money-back guarantee of delivery quality</i>	Money-back and make-good guarantees available
Learning responsibility rests with user	<i>Learning responsibility rests with both student and supervisor</i>	Supervisor and student both responsible for learning
Learner's experience is commonplace; "lowest common denominator"	<i>Individualized experience</i>	Stimulating, individualized experience (if small class size)
Feedback to user low; live feedback, if available, is delayed	<i>Feedback to user should be clear and complete</i>	Feedback occurs in real time as learning occurs; feedback is focused to user's concerns
Feedback to management is consistent but minimal; management cannot ask nonstandard questions	<i>Feedback to management should be clear and complete</i>	Feedback system is formal and timely; management drives content of feedback
Lacking time constraints and formal structure	<i>Structured and motivating atmosphere</i>	Structure and motivation provided
Instruction quality level is consistent but low	<i>Same quality instruction each delivery</i>	Instruction quality varies but can be set to a high baseline
Low interaction	<i>High interaction</i>	Interaction during lecture and lab with immediate feedback (if small class size)
Practice difficult to simulate inline with presentation; little or no supervision of separate hands on practice	<i>Supervised hands on practice performed in sequence with the training</i>	Supervised hands on practice at natural sequence points, both within presentations and during lab sessions

Training Comparison Chart (Cont'd)

E-Learning	Desired Attributes	Instructor-Led, Hands-On Training
Retention poor to fair, depending on inclusion of audio and video	<i>High retention of material</i>	Hands-on practice, social interaction produce high retention
Labs, if present, cannot be complex; exercises are not tailored to problem domain or equipment used by student	<i>Teach problem solving in the user's application domain</i>	Labs can be challenging and comprehensive due to presence of instructor and assistance with lab environment preparation
Simulation extremely difficult due to homogeneity of presentation and generic lab instructions	<i>Simulate work environment during hands on practice</i>	Simulation of work environment via tailored lab environment and dynamic alterations to exercises
Materials hard to update	<i>Easy to update</i>	Continually updated
Mixed media difficult and expensive to build, maintain	<i>Use all media</i>	Uses visual and aural presentation, tactile hands-on practice
Each user has to figure out own path to comprehension	<i>Tailoring within curriculum</i>	Curriculum tailored to fit individual and group's needs
Learning efficiency low	<i>Learning efficiency high (minimize time and effort of students)</i>	Learning efficiency maximized
Unit cost ranges from low to high	<i>Unit cost low</i>	Unit cost ranges from low to high
ROI unknown, likely low	<i>ROI known and high</i>	ROI known and very high
Lots of hidden costs	<i>No hidden costs</i>	No hidden costs
Delivery when implemented; little notice required thereafter	<i>Just in time delivery</i>	Delivery when needed; planning of three to six weeks required
Completion of training cycle varies with each user	<i>Timely, synchronous completion of training cycle</i>	Completion of training cycle is controlled and synchronized

Report Addendum: Six Critical Characteristics of Excellent IT Training

1. Task Orientation and Focus on Competency

The only way to really assure competency through training is for the provider to analyze necessary tasks and have people actually perform those tasks during the training. Look at the course description – does it fundamentally talk about software features or about work that people do? If you can't create a list of tasks that you'll be able to perform from the course description, then the training is probably not task oriented. If the stated goal of the training is for you to be able to pass a test rather than to be able to perform desired tasks, then the training is probably test oriented rather than task oriented.

2. Solid Focus on Hands On Practice

Hands on practice during training, if it's thorough and well-structured, serves to increase the student's real level of experience. Some theory can be imparted through talking and studying, and that's a necessary part of learning. But when the topics are complex and highly technical, an equally essential ingredient is hands on practice to build competence, confidence, and clarity of understanding.

The only way to guarantee that every student comes out of technical training with true competence is to have every student perform tasks in the form of realistic, well structured hands on exercises. Good training programs should also minimize the amount of time spent learning and maximize retention. A hands on approach assists in meeting these goals. Unless the labs are trivial, students will need assistance from time to time, so insist on a program that provides live, expert guidance and facilitation.

3. Social Interaction and Small Class Size for Supervised Portions of the Training

Social interaction drives retention rates up to double the level of ordinary self-study approaches. And small class size is an objective measure that you can use to help assure that students receive the direct interaction they need to get questions answered and receive timely assistance during hands on labs. It is little help to have an expert providing assistance if you can't get his or her *attention* to answer a question, provide recommendations, or discuss your particular problem domain. One of the most valuable services an instructor provides during face-to-face training is the opportunity to discuss how the topic at hand affects the student's own work – how the information can be applied in the student's own problem domain.

4. Ownership and Control of the Courseware

One of the most important factors that can lead to a failure in course delivery is substandard course design and courseware. This is the best kept secret of the technical training industry. Many training providers, even the largest ones, often concentrate first on winning the business, and then on finding an instructor and third party courseware. That means lowest-common-denominator materials and labs. Quite often, the instructor as well as the courseware is a complete unknown to the training provider. The training provider has no more idea than you do of how well the training is going to come off.

Control of the courseware drives down cost and helps guarantee quality through incremental improvement. It facilitates customization and comprehensive focus on topics of interest to a particular group being trained. This is particularly important when setting up training at a customer facility.

5. Technically Expert Instructors and High Instructional Quality

E-learning providers who are repackaging existing live course material and calling it e-learning, are omitting all of the insight of the live instructor and all of the reinforcement that occurs during supervision of hands on exercises. Live training presentation notes are simply not designed to be effective as self-study or e-learning content. They are designed as presentation aids for a live presentation! A live training course will always provide superior presentation when compared to all but the very best e-learning, unless the instructor is a substandard dud.

The best way to avoid a substandard presentation is to personally evaluate any proposed instructor(s). An obvious action you can take is to check the knowledge base and communication skills of the scheduled instructor by performing an interview, even if only by phone. Your technical staff can readily determine if the instructor understands the proper focus of the training, the needs of your staff, and the best way to get the information across. The best way to avoid a substandard delivery of *any kind*, whether due to the instructor or any other unsatisfactory element of the class, is to insist on a money-back or at least a make-good guarantee. The best providers of live training are more than willing to extend such a guarantee.

6. Maximizing Convenience and Cost Control

There are several factors to examine in order to minimize the total cost of training. One obvious factor is the tuition rate. A second factor in controlling costs is to minimize or eliminate travel expenses. A third consideration is convenience. If a class isn't offered at a convenient place and time, it's not going to save as much of the time and hassle of learning new material, and that's a real cost. If e-learning administrators don't provide specific, identifiable training times and venues for the student, then the "convenience" of the e-learning is illusory – the student must work to fit the training into his/her schedule. This is appropriate for self-directed, disciplined learners, but they represent a minority of the student population. Live training provides a formal, directed environment that assures each student meets the goal of developing true competency, within the time frame allotted. By planning ahead at least six weeks and using internet searches coupled with a general knowledge of quality national providers and strong regional providers, you should be able to find a local class that removes the need for travel costs or unnecessary delay in commencing live training.

In the IT arena, the tuition cost of live training can and should be more than competitive with even low quality e-learning offerings. Some live training vendors, such as Hands On Technology Transfer, Inc., guarantee that they can deliver live training at the same cost or less when contrasted with e-learning products containing comparable content. IT departments that select e-learning for cost cutting reasons are not doing their homework and probably don't realize that cost effective, high quality live training alternatives that would produce superior results are almost always available.

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