eLearning in Practice

Blended Solutions in Action

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The Challenge

You've been facing a critical business problem for months. Fulfillment is out of control, the ecommerce site is delayed again, and your suppliers are giving you ulcers. You finally got the ecommerce development specialist to sign an offer letter, and a competitor countered and stole him away. Your marketing team just followed the CTO to a start-up, and you have no hope of meeting your delivery deadlines without a miracle.

You know that the low unemployment rate is making hiring a challenge at every level — 50% of your requisitions have been open for more than six months. Your HR people are screaming about retention rates. Your most loyal customer is complaining about a change in

IDC Opinion

What factors should companies consider when selecting an elearning solution?

Companies considering training as a solution for a business face a variety of delivery options, including:

- Broadband delivery of high-quality, video-intensive solutions
- Internet delivery of live, instructor-led classes or self-paced training
- CD-ROM delivery for training when not connected to the Internet
- Classroom training with or without simulations

Each of these options has specific strengths and weaknesses that must be considered before a solution can be constructed. For most companies, a single delivery "channel" for training is inadequate to satisfy all the training needs of the full range of target learners.

This paper discusses the strengths and weaknesses of various training delivery options and develops a model to identify the environment in which each works best. A companion paper, entitled *eLearning in Practice, Three Case Studies*, profiles three companies with complex training needs and describes how blended training solutions can address their challenges.

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account coverage that the VP of sales insisted was critical because of the loss of so many from the sales team. The board is asking about a timeline for the IPO, and the new CFO can't get past a personality clash with your executive assistant.

The problem has been creeping up on you like a migraine headache. Your workforce weaknesses are becoming business weaknesses, and you can't beat them using the same old solutions.

The only optimistic group in the company is a training team that insists on one thing — elearning. They say it can increase retention, drive down training costs, decrease roll-out times for new products, train IS hackers in sound business practices, rehabilitate workers who just don't get it, and convince your customers that there is no other relationship more important than theirs.

Sure, the team demands more money in the short term, a few technophobic managers insist its all hype, and the CTO warned you about the need for an infrastructure upgrade just after his goodbye lunch. But the trainers and HR talk about ROI, someone mentions "outsource," the mail room clerk says ASP at the right moment, and you can almost hear the train coming and hope to jump on before the steel wheels grab your coattails. Yet something sounds too good to be true, and you wonder if it can be that easy.

There is no magic pill; no Excedrin to solve the cascading problems. However, training, a solid plan, and carefully applied technology can alleviate the pain.

Why Training?

IDC has frequently reported that CEOs cite skill and employee development as their top priorities to ensure the survival of their organization. Hiring appropriately skilled employees is harder and more expensive than ever before. By 2002, there will be more than 800,000 unfilled technical positions in the United States alone, an increase of 15% since 1999. Developing employees' skills can be a complex process, yet the results are far more predictable than hiring an industry expert to fill in a critical spot on the team. Increasingly, this approach is becoming the only way to fill the spot. IDC research shows that firms searching for candidates to fill technical positions may search for nearly two months before a candidate accepts and starts work. Managerial positions, both technical and non-technical, can take even more time to fill.

Workplace challenges, hiring issues, and business issues trigger the need for an effective training plan, which would incorporate a continuous human improvement process. Employees at all levels would be "groomed" for increased responsibility, expanded roles, and even moved into departments with a critical need. As an employee changes roles, responsibilities, or interests, the training plan would adjust to reflect those changes.

For organizations, a training plan provides a continuous pipeline of employees engaged in their work and in their own developments. The pipelines can direct employees toward underserved or critical needs, ensure consistent (and effective) communication of organizational priorities, and demonstrate the link between employee actions and corporate goals and successes. Some employees will move faster than others, yet all are continuously improving their skills, expanding their capabilities, and preparing for their next responsibility.

This discussion will help companies considering elearning solutions understand some of the issues surrounding the selection of a delivery technology. The paper briefly discusses training delivery options and their primary strengths and weaknesses. It will lay out a framework for evaluating a company's training objectives, learning services, and available technology to assist in selecting the appropriate training solution. A companion paper, entitled *eLearning in Practice, Three Case Studies* highlights three clients of Mentergy Inc. with complex training needs that were effectively addressed by using a blend of training delivery options.

Finally, this document will help companies begin a productive dialog about the value of a blended training solution and understand the rational for selecting the right blend of delivery options.

What Plan Is Right for You?

The goal of a training plan is to present the right training opportunity to all the right people at the right time. Training only half the ecommerce integration team to correctly integrate two critical systems is not enough. Just training the West Coast customer service reps to handle disgruntled callers isn't enough. Training the central office staff to file expense reports probably doesn't help accounting when the sales force is spread all across the country.

The question is clear: How can an organization train all of its people, wherever they are, in whatever content area they need, without having them all fly into the local Marriott for three days a quarter? Like a motivational sermon, a blistering fastball, or a hot pizza, it all comes down to delivery.

Most of us have spent 12–16 years or more in classes. Some of us have taught a class or two. What's there to know about training, anyway?

The trainer knows stuff, the student doesn't. It seems like a straightforward process. However, a good training plan is not that simple.

Adult learners bring experience to the table that is often directly relevant to the class they are attending. Some of those experiences can be broken into several categories:

- **What the learner brings to the class.** Learners bring experiences to class that help them understand the information being presented or that make the training relevant to them.
- **What the learner leaves behind.** Learners have concerns outside of the training class that influence when or how they are best able to learn.
- **What the learner hopes to get from class.** Learners come to classes with different expectations about what they need from a class.
- **Where the learner is located.** Access to a classroom or technology directly affects a learner's ability to take advantage of particular delivery options.

These characteristics illustrate that a rich and complex set of stories and circumstances can be on a simple list of "who needs training," which a trainer and training plan must consider.

A training plan rarely produces a single solution. What learners know and don't know, what they need to know, and how they get the required information will be different. In the end, most companies must use a blend of solutions in their training plan to get the right content to the right people at the right time. The key is to understand what each delivery option offers and use the right blend to cover all the learning needs of the target learners.

What Are the Options?

What options are available to a company with many training goals and diverse learning needs?

The options have been the same for many years. Recently, however, technology and vendors have combined to make the choices more robust and to permit organizations to choose good training alternatives. In most organizations, decision makers like to make choices between things. For a training solution, the questions might be, do we teach a class (synchronous training) or do we let everyone proceed at their own pace (asynchronous)? Do we use technology or do we use a non-technological solution? Although these decisions seem straightforward, they are complex and end up being based more on a false premise than sound judgement.

The most challenging aspect of developing a training plan is knowing the available delivery options. Buzzwords, studies, opinions, and preconceived notions all interfere with a good decision. All the training

options work. What distinguishes one from another are the conditions in which an approach is undertaken and the resources available for a particular training need. For the sake of this discussion, the following provides a brief summary of the six basic forms of training delivery and their primary strengths and weaknesses:

- **Instructor-led training (ILT).** This most common form of training is conducted at the same pace for all the learners in the class (synchronous). Most learners are familiar with the way ILT works. It is both fast and flexible in both development and delivery. At the same time, ILT is costly to deploy because of the need to either move people to the trainer or move the trainer to the people. The most significant drawback to ILT is its limited scalability.

- **Text-based training.** Training's first technology innovation was the printed word. As a self-paced tool, it requires no additional equipment. It's cheap, portable, and scalable. Yet, its content is static and difficult to update, it is inflexible to the needs of the learner, not interactive, and provides limited opportunity for remediation.

- **High-bandwidth Internet (HBI).** Typically delivered using satellite or broadband networks with live or pre-recorded video, HBI offers an opportunity for both self-paced and synchronous training. It has the same advantages of ILT with the exception of its cost. Because of the added hardware and networking costs, it has more fixed costs than ILT to deploy but has none of the travel requirements of ILT. Additionally, the high-quality video capability more effectively conveys certain types of content. Most implementations use a classroom metaphor as much as possible to increase student familiarity and decrease the disruption of the technology. With a delivery system in place, the system is massively scalable and flexible in its ability to deliver the same training around the world or across town.

- **Low-bandwidth Internet (LBI).** LBI solutions include live over-the-Web slide shows, conferences, and virtual classrooms with voice-over-IP (VOIP) or other technology to facilitate two-way voice communication between the expert and the learner. Much like HBI, LBI is scalable and flexible; yet, it is also less expensive and easier to deploy and maintain, requires much the same cost to develop training, and can easily be used in both formal and informal training settings. Additional advantages include the ability to record sessions, edit, or modify them and make them available for reuse on a self-paced or even a reference basis. Because the solutions are deployed using the Internet, performance is often dependent on network traffic and can sometimes be unpredictable.

- **CD-ROM.** The workhorse of the technology-based training stable. Its been around and evolving for more than 10 years. Its content can be engaging and flexible for the various needs of the learner, contains a high degree of interactivity, is inexpensive to deploy, and is

highly scalable. Its most significant advantage over other technology-based training is its convenience for "disconnected" learning (i.e., learning when not connected to the Internet). It is also costly and time consuming to develop and, so far, difficult to update.

- **Web-based training (WBT).** Like CD-ROM, the content can be engaging, flexible, and interactive. It has a similar development profile to CD-ROM, yet it is easier to update and distribute. At the same time, its significant draw back is its requirement to be connected to the Internet (or to download and store a course for disconnected use). Like LBI, performance varies depending on network traffic.

One characteristic that should not be used to judge between these categories is "quality." Every delivery method used must be of high quality. With the proper effort, the best technology-delivered training can be as good as the best non-technology training solution.

The basic delivery options and their strengths and weaknesses are summarized in Table 1.

Table 1
Training Delivery Options

Delivery Method	Primary Strength	Primary Weakness	Relative Cost to Develop/Deploy
Instructor-led training (ILT)	Familiarity and interaction	Ability to scale and total cost of delivery	Low/medium
Text-based training	Portable, universally available	Timeliness, no interaction or feedback	Low/low
Technology-based training			
High-bandwidth Internet (HBI)	Strengths of ILT, plus scalable, high-quality video capability	Technology not universally deployed	Low/high
Low-bandwidth Internet (LBI)	Strength of HBI, plus common technology	Some technologies are dependent on Internet traffic, some shift in classroom metaphor	Low/low
CD-ROM	Engaging, can be highly interactive to a range of learners, disconnected	Time to develop, hard to update	High/low
Web-based training (WBT)	Like CD-ROM, but easier to update and deploy	Time to develop, must be connected to the Internet	High/low

Source: IDC, 2000

Consider a Blended Solution

ILT is flexible, fast, and relatively inexpensive to develop. Yet, this is important only when the learner is in a position to attend a live session. Factors, such as location and time commitment, can determine the success of a live training event.

Self-paced training is convenient and can be made adaptive to the needs of the learner. However, the learner must understand how to use the technology and may have questions or need clarification beyond the static content contained in the pre-programmed learning event.

Technology-delivered training can extend the reach of a training program, which only matters if the technology is available to the learner. Circumstances and location directly impact the appropriateness of a technology-delivery solution.

When combined with live training, self-paced training and technology delivery offer an effective, convenient, and flexible solution to a wide range of training needs. A primary measure of the success of a training plan should be its ability to meet the whole range of student needs in all locations and with the greatest accomplishment of the learning objectives.

Finding the Right Mix

The $24,000 question is, how do you determine the delivery options to employ for a paticular circumstance? Although there is no single formula, no "right answer," certain situations will help determine what components of the delivery mix should be used. The exact proportions will be based on far more conditions than any single discussion can cover, but the basics are clear.

Three primary factors that need to be considered are:

- Content type
- Learner needs
- Technology solution availability

Although IDC believes these three factors are the most important in determining what types of training to blend together to form the best learning opportunities, this document only presents a reasonable roadmap and guide for selection. Many other unlisted factors might also contribute to a selection decision.

Content Type

Business objectives determine the content a learner needs. Content can be defined by the information conveyed and the "metacharacteristics" of that content.

According to Andy Snider of VIS Corporation, a simple selection scheme can help you understand what type of content is conveyed:

- **Informational content** is the one-way passage of facts. It might be as simple as a list of prices for a product line, the options available on a new car, or the latest changes to a 401K plan. Learners can demonstrate their understanding of informational content through recitation or even application of that information. Because students learn at different rates, the ability to proceed at the learner's own pace, slowing down, or even skipping sections if appropriate must be convenient for learners of this kind of content.
- **Procedural content** links action steps (or information) together to form a process. It may include how to determine a standard discount for a customer, how to custom order a particular option package for a car, or how to allocate the distributions in the 401K plan. This approach might be considered a linear path. Procedural content must be learned through practice. Sometimes a complex process may involve using job aides to help determine the next step. The ability of the learners to proceed at their own pace is also important with this type of content.
- **Behavioral content** is similar to procedural content except it involves more options, more possible paths, and probably more than one correct action. For instance, how to negotiate a better discount or the price of the car or even how to interact with a newly married couple setting up a retirement plan. This can be considered a multipath process. Behavioral content must be practiced with changes to the circumstances. Role playing and simulations are often effective ways to communicate behavioral content. Interaction with other participants is important as is the ability to try out behaviors in a risk-free environment. Reinforcing the knowledge that a learner already has and applying that knowledge to new circumstances are also helpful.
- **Conceptual content** offers a web of connections. Conceptual content permits the learner to extrapolate from the known to the unknown. It often has to be "tried out" by the learner and requires a high degree of interaction with other learners.

The type of content can help determine the kinds of learning experiences most efficient for particular objectives. Informational content should be more self-paced, with opportunities for coaching. Conceptual should be primarily collaborative with opportunities to "brush up" on the facts. Table 2 visually presents the efficiency of each delivery method.

Table 2
Efficiency of Delivery Method for Content Types

Delivery Method	Informational	Procedural	Behavioral	Conceptual
Instructor-led training	•	•	••	••
Text-based training	•••	••	••	•••
Technology-based training				
High-bandwidth Internet (HBI)	••	••	•••	••
Low-bandwidth Internet (LBI)	••	••	••	•
CD-ROM	•••	•••	••	•••
Web-based training (WBT)	•••	•••	••	••

Scale: Less efficient = • Most efficient = •••
Source: IDC, 2000

The other characteristics of content, the metacharacteristics, relate not to what the content needs to convey but how it will be used, changed, or accessed. Questions that illuminate those characteristics include:

- Is the content frequently updated, like a price list, or infrequently altered, like the name of the states and their capitals?
- Will this content be passed along once and not repeated, like a certification course?
- Will the learner repeatedly refer to this information; therefore, must the content be conveniently accessible?
- Will many people be using the content?

Metacharacteristics can determine the scalability and "update ability" required for the selected delivery method. The more learners who need to be trained, the more scalable the solutions need to be. Less frequent updates allow for less ease in updates. Table 3 visually presents the scalability and update ability of each delivery method.

Learner Needs

In some educational debates, the term "learner centric" can appear to take on a meaning of "have-it-your-way" education. A more appropriate analogy would be to think of "learner centric" as taking into account the learner's "allergic reaction" to various learning objectives. Learners must be engaged in a learning event and understand the relevance of the learning event on their work. Engagement is impossible when the learner has no context framework or if the content is merely a repetition of something the learner already knows. To extend the allergy metaphor, a learning event should be more like an addictive drug than a bee sting, the learner should want and need the training, not be afraid of the sound of it.

Table 3
Scalability and Ease of Updates of Delivery Method for Metacharacteristics

Delivery Method	Ability to Scale	Ease of Update
Instructor-led training	•	•••
Text-based training	••	••
Technology-based training		
High-bandwidth Internet (HBI)	••	••
Low-bandwidth Internet (LBI)	•••	•••
CD-ROM	••	•
Web-based training (WBT)	•••	•••

Scale: Less = • More = •••
Source: IDC, 2000

Various factors influence a learner's want and need of training and consequently the make up of that training event. For instance:

- Is the learner refreshing existing knowledge?
- Does the learner need just one part of the course?
- Are the learners different in background, job function, and responsibilities?
- Do the learners intend to use the content in different ways?

The needs of the learner can help determine the mode of training, either synchronous or self-paced. The more questions answered "yes," the more likely a self-paced, modular course is appropriate. Table 4 visually presents the possible mode and modularity of each delivery method.

Technology Solution Availability

Finally, whatever solution is selected must be conveniently available to the learner. There is no reason to set up a videophone conference call if no one has a videophone.

At the same time, the delivery solution must support the learning objectives of the course. As mentioned above, if the purpose of a course is to convey a new price list for a line of products, there is little value in establishing a live videoconference between headquarters and 200 retail outlets. At the same time, flying the entire company to a conference hall in Boise to learn about local reporting procedures is overkill.

The availability of the solution extends not only to "do they have computers" or "are they close to the trainers," but also to how they connect to the Internet and are they on the road, at home, or in the office for training? In some cases, some target learners will have a technology,

Table 4
Mode of Training and Modularity of Delivery Methods

Delivery Method	Mode	Modularity
Instructor-led training	Synchronous	•
Text-based training	Asynchronous	•••
Technology-based training		
High-bandwidth Internet (HBI)	Both	• (Sync)
		•• (Async)
Low-bandwidth Internet (LBI)	Both	• (Sync)
		•• (Async)
CD-ROM	Asynchronous	•••
Web-based training (WBT)	Asynchronous	•••

Scale: Less = • More = •••
Source: IDC, 2000

while others will not. Some will be connected to the company LAN, and others will be using dial-up connections. These considerations should impact a decision for a single delivery option and make the blend of solutions even more important. Table 5 presents some of the technology or special requirements for each delivery method.

Table 5
Technology or Special Requirements of Delivery Methods

Delivery Method	Space	PC	Internet Connection	Other (describe)
Instructor-led training	•			Training aids
Text-based training				Printed materials
Technology-based training				
High-bandwidth Internet (HBI)	•		•	High bandwidth connection, display device
Low-bandwidth Internet (LBI)		•	•	Additional phone line (possible)
CD-ROM		•		CD-ROM
Web-based training (WBT)		•	•	

Required = •
Source: IDC, 2000

How Do You Select the Right Options?

To achieve the right mix, a company must first understand its learning needs. Consider the following questions to determine the type of training required:

- What business objectives must be addressed by this training, and what types of content will that require?
- What are the characteristics of that content?
- Which learners should we target, and how similar are they?
- What technologies do the learners have available to them?

Analysis and reflection on the content, the learners, and the available technology will help clarify the possible alternatives.

This need for analysis suggests a broader definition for the term blended solution, which includes a blend of planning, development, and delivery of training.

This may seem painfully obvious or unnecessarily burdensome. However, simply selecting what a vendor is selling or what the training team is proposing may not solve the entire learning need of the organization.

Many high-quality vendors fill the learning space today. Some are content companies, some are delivery solutions companies, and others are service providers. A blended learning solution will require some work from a provider with a range of skills and experience with the precise business issues a company faces.

Conclusion and Recommendations

For most companies, a single delivery "channel" for training is inadequate to satisfy all the training needs of the full range of target learners.

Adult learners bring experience to the table that is often directly relevant to the effectiveness of the class they are attending.

The goal of a training program is to ensure that 100% of the target learners get trained. Therefore, in most cases, a training plan must account for differences in content, learners, and access to technology.

- The type of content can help determine the kinds of learning experiences most appropriate for particular learning objectives and the delivery mode for the training.
- The needs of the learner can help determine the mode (synchronous or asynchronous) and the importance of a modular training solution.
- Access to technology impacts the decision for a single or multiple delivery options.

When combined with live training, a blended solution of self-paced training and technology delivery offers an effective, convenient, and flexible solution to a wide range of training needs. Analysis and reflection on the content, the learners, and the available technology will help clarify the possible alternatives and make the selection of a blended solution most appealing.

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