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Using the IBM Lotus LearningSpace - Virtual Classroom

A Best Practices Guide to e-Learning

- Fundamentals of e-Learning
- Tools in the Lotus virtual classroom
- Making the most of the LearningSpace - Virtual Classroom

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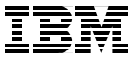

International Technical Support Organization

Using the IBM Lotus LearningSpace - Virtual Classroom
A Best Practices Guide to e-Learning

July 2002

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Note: Before using this information and the product it supports, read the information in “Notices” on page ix.

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Note: This book is based in part on a pre-GA version of a product and may not apply when the product becomes generally available. We recommend that you consult the product documentation or follow-on versions of this redbook for more current information.

Contents

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Preface

New ways to educate and train employees are attracting attention in today's work environment. This includes the e-Learning technology. This IBM Redbook discusses a component of e-Learning: the live virtual classroom. The live virtual classroom provides the benefits of real-time face-to-face interaction among instructor and students, while saving travel and facilities costs. We provide an introduction, discuss the value and benefits, describe the tools available, provide suggestions for using them, and show how the IBM Lotus LearningSpace product supports the virtual classroom. We include tips from our own experience and from other knowledgeable educators.

The audience for this redbook includes e-Learning planners, decision-makers, and installers, as well as facilitators and producers.

The team that wrote this redbook

This redbook was produced by a team of specialists from around the world working at the International Technical Support Organization, Cambridge Center.

Mike Ebbers is a senior IT specialist at the International Technical Support Organization, Cambridge Center. He writes IBM redbooks and teaches classes worldwide. Mike has spent 28 years in IBM doing technical marketing and education. He has been with the ITSO for seven years.

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Thanks to the following people for their contributions to this project:

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Susan Lawler
Joselin Mane
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IBM Lotus Development, Cambridge

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Foreword

Nowadays, technology-based learning accounts for about 10% of all training delivered in corporate training organizations, and the percentage is predicted to grow to 20%. All indicators point to an increasing use of online learning as the primary delivery technology. The growth in this delivery medium has prompted us to create an IBM Redbook to help you take advantage of technology-based learning, specifically the IBM Lotus LearningSpace-Virtual Classroom.

This book will help you maximize the educational effectiveness of the Lotus LearningSpace - Virtual Classroom. Organizations seeking ways to design, develop, and deliver content faster will find the virtual classroom a powerful tool. Live programs can be quickly developed to deliver new product introductions or teach new business processes. The tools embedded in IBM Lotus LearningSpace-Virtual Classroom enable programs to include application sharing for interactive learning, whiteboards for on-the-fly explanations, and breakout sessions to facilitate group work. In addition to making content development faster, the live virtual classroom offers learners an opportunity to build a community of practice and to extend their professional knowledge. The synergy and the interaction among participants enable the instructor to draw upon an extended resource pool.

The development of this book has been a collaborative effort drawing on the knowledge of e-Learning experts from around the world who bring insights into the technical, organizational, and educational issues relevant to the virtual classroom. As you scan the table of contents, take note of the detailed chapters

addressing live virtual classroom instructional design, program development, facilitation tips, and ideas for building a business case.

We trust this will be a valued reference book that you refer to time and time again.

Dr. Margaret Driscoll
Director, Strategy and Ventures
IBM Mindspan

Note from the authors: This redbook was written to introduce you to the upcoming virtual classroom component of IBM Lotus LearningSpace V1. At the time of writing, the product was still in development. So we wrote about its design and functions, then used the current LS 5.01 Collaboration component to illustrate those functions.

Part 1

e-Learning fundamentals

In this part we introduce the main concepts and basic facts about e-Learning. In its short history, e-Learning has evolved very quickly, from both technical and conceptual points of view. New technologies and new business models have had a decisive impact on the learning environment, not only in the nature of its contents but also in the way of delivering them, and more fundamentally, in the overall attitude towards *acquiring knowledge.*

We intend to give you a clear picture of the evolution of knowledge acquisition techniques and what impact they may have in your workplace and business development.

1

e-Learning background

In this chapter we describe the main factors that have fostered the development of e-Learning, and how e-Learning can help your company.

1.1 The learning evolution

The great majority of organizations have only just begun to search for ways of building and maintaining ongoing capabilities in e-Learning. According to a 1999 IBM Mindspan Solutions-sponsored Mercer Management Consulting study, most companies that are using distributed learning today have maintained the traditional focus on *training*—education in preparation for a specific job—and have not yet expanded their vision to the broader uses and possibilities offered by e-Learning. These usage patterns will change as three trends emerge:

- The emphasis will shift from training to *continuous learning*, from education in preparation for a job to education as a continuing activity within a career. Looking forward, the emphasis will continue to shift to performance support with the integration of knowledge management capabilities.
- e-Learning content will expand beyond its current concentration on Information Technology and certification programs and will focus on *meeting business needs*: shortening time to market, integrating acquired operations, or implementing new systems, for example.
- *Customized content* will become more important than off-the-shelf courseware as e-Learning initiatives focus on an enterprise's structural goals.

Mercer Management Consulting found that there are innovative enterprises that have moved beyond training to focus on e-Learning as a tool for business process transformation. Many of these early-adopters have had success with e-Learning as the solution for a specific business process problem. Interestingly, the champions who have fostered these successes have not always been directors of training programs. Instead, they have come from across the organization, from areas such as sales and marketing, with e-Learning used to speed new product roll-outs, for example, or to maximize time spent with customers.

At some point e-Learning will probably feature in your corporate learning policy. There is a growing trend towards the implementation of e-Learning in corporate learning. In fact, according to *Online Learning Magazine*, the percentage of organizations using e-Learning to train employees grew from 16% in 2000 to 24% in 2001. 30% of organizations that responded to an IDC e-Learning survey[1] said that their customers are using e-Learning.

In Figure 1-1, you can see how spending in e-Learning has grown in the last 6 years and the dramatic projections for the next few years. You can also appreciate that the big jump starts between years 2000 and 2001; this takeoff coincides, in general terms, with the boom days of the Internet and globalization efforts in the world.

[1] Source: "e-Learning Vendors: These are Your Customers" IDC October 2001

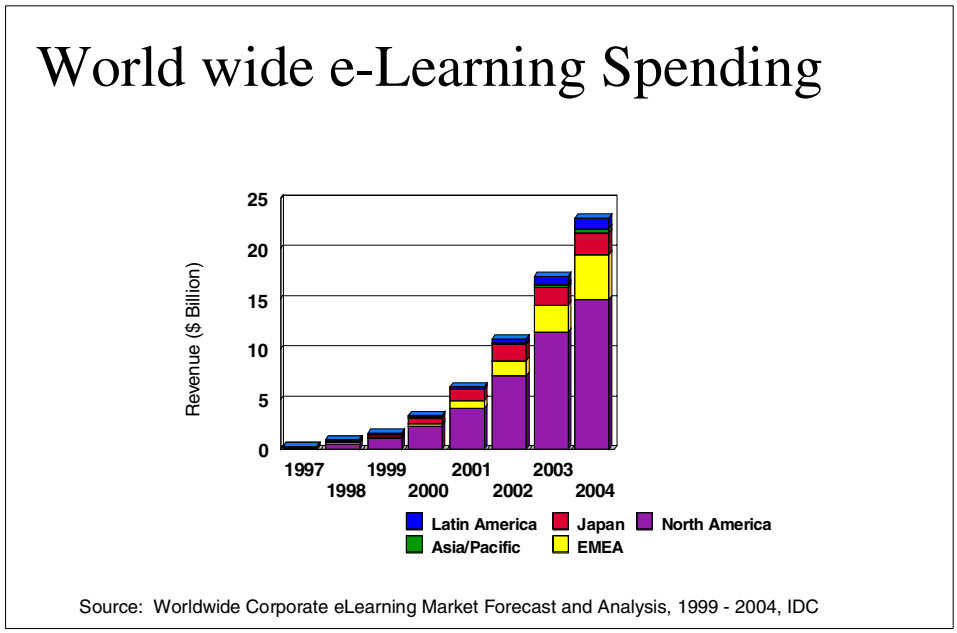


Figure 1-1 e-Learning spending

So the obvious question comes to mind: why are organizations spending this money to implement e-Learning?

1.2 Value propositions

The nature and competitiveness of the market requires that companies keep their costs down, reduce their time to market, and improve the quality of their products. Corporations turn to e-Learning as a means to achieve those targets and remain competitive.

Figure 1-2 shows some of the main factors that have had a direct impact in the marketplace and, in turn, on e-Learning. In addition to those mentioned above, factors include worldwide marketplaces and an increasingly mobile workforce

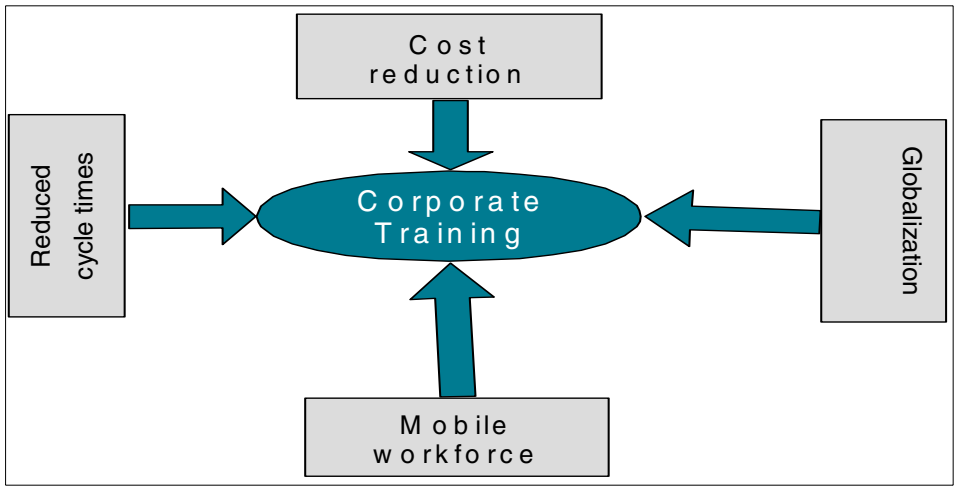


Figure 1-2 Business factors which influence the e-Learning evolution

In the following sections we describe some of these factors in more detail.

1.2.1 Cost reduction

One area where e-Learning can help your corporation to remain competitive is the reduction of costs associated with learning. With e-Learning you can dramatically improve cost savings.

Travel costs

This area of improvement is particularly relevant to geographically dispersed corporations in which travel, living, and hotel expenses consume a significant amount of the learning budget.

Either the instructor(s) must travel to different training locations, or the learners must all meet in a particular venue. We must also add the cost of the time invested by both instructor and learner to go to the training venue.

e-Learning can offer *common accessible virtual places for people to get training,* from either their workplace or home computer. Students can access it at the time they choose, and follow the course or curriculum at their own pace in an asynchronous manner via discussion threads and mail. They can also meet at the same time in a *live virtual classroom* environment.

Instructor costs

In some cases, when the training must be performed simultaneously in different places, or when there is a very tight schedule, companies may be forced to

employ more than one instructor (either internal or external), who in turn need training.

With e-Learning you can have *one single instructor either delivering a live worldwide broadcast or moderating collaborative sessions* with learners from all over the company.

Time away from workplace costs

This is also a cost which is often overlooked. While an employee is away on a course, this person does not produce, and therefore it should be considered an added cost.

With e-Learning, training *delivery is shortened,* learners can *work from their workplace computers*, and they can choose to *run the sessions during off-peak periods when training will not take up production time*.

Venue costs

Whether there is travel involved or not, there are certain costs associated with face-to-face sessions which cannot be avoided, namely: maintenance of the training room or lab; rental of rooms at different locations such as hotels or business centers; provision for refreshments; rental or maintenance cost of required equipment such as computers, overhead projectors, screens, etc.

e-Learning may not require a special venue. Moreover, once you have made the initial investment in an e-Learning infrastructure, you can *reuse the resources* over and over again—network, software, and videoconferencing facilities.

Reuse of materials

When a traditional face-to-face training session has been delivered, it is over. If learners missed it, or had problems in following it because it was about an unfamiliar topic, they will not be able to re-visit it.

With e-Learning, learners can go back to the training environment as many times as required and re-read the topics or replay the sound or video tracks. *The recorded sessions or discussion threads will always be accessible*, at any time of day or night, until they become obsolete and are archived.

e-Learning also allows you to take modules and re-use them or update them when necessary. You do not need to start fresh.

1.2.2 Globalization

In addition to the economic constraints and fast-paced change, organizations are also faced with additional geographical factors.

Big, global corporations, which are present in different countries or continents, often need to train their staff on certain new processes and procedures (sales strategies, new products, or expense policies). In such cases, face-to-face training would be extremely expensive, or not feasible at all, resulting in employee dissatisfaction and decreased efficiency.

They must also address *global market requirements*, and as such they need to adapt their processes and structures to give adequate service to their customers. This means that corporate knowledge, policies, procedures, strategies, or technology need to be spread all around the world, taking into account different locations, time zones, cultural aspects, etc.

The traditional approach of sending instructors to field locations to explain the latest improvement in the invoicing procedures is, in most cases, not feasible anymore. Now you need to spread this knowledge in a global, flexible, and sometimes participatory manner (you may want to have access to the immediate feedback of your audience). As processes are becoming global, learning processes must also become global.

e-Learning can *bring all the relevant people together*, either synchronously or asynchronously, and facilitate the appropriate training or learning environment in an adequate time frame.

1.2.3 Mobile workforce

The increasing *mobility of workers* and the move to *home-based working* are also driving the trend from classroom-based learning to distributed e-Learning. Again, this trend is accelerated by the new technological developments, such as fast connections and pervasive devices such as wireless phones or PDAs.

By providing quick and accessible training to your field workforce, you will be sure that they will always be competitive.

1.2.4 Reduced cycle times

In the last few years, there has been a significant shift from a task-oriented to a *knowledge economy*. Organizations are experiencing a shift to an e-business economy, influenced by fast technological developments, shorter product life cycles, and mergers and acquisitions. The following circumstances are among the effects of this change.

- A given technological area of expertise that is of capital importance today may become obsolete in a few months.
- When two companies merge, their internal processes must change and this knowledge needs to be spread across their staff.

- A significant proportion of an employee's skills and knowledge, particularly in the technical environment, becomes outdated in a period of three to five years.

To keep up with this continuous change and to gain competitive advantage, corporations need to make sure that their employees are up-to-date in their skills and knowledge. Efficient, quick to develop, and accessible learning methods are therefore critical for the success of a company.

In the next few years, a large proportion of corporations will require skilled workers who are able to evolve at the same pace as the market requirements. Thus it will become increasingly difficult to find and retain skilled workers.

To cope with all of this change, organizations need to re-skill employees to operate effectively in the new environment and under the new requirements, and e-Learning has an important role to play in this field.

1.3 Learning and return on investment

These considerations lead us to a situation most corporations have to face: how do you calculate the cost of training in relation to the return on investment?

The calculation of return on investment (ROI) in learning is neither tangible nor immediate. Results are usually perceived at least six months or more after the training has been delivered.

You can use ROI calculations to identify and measure tangible and intangible benefits of training programs, including, but not limited to, the following:

- Increase in productivity
- Reduction in cycle time
- Performance improvement
- The *fair share* of the sales training contribution to your business bottom line
- Other measures specific to your training situations
- Recommendations on future improvement in training investment decisions and/or program development and implementation

ROI is a key financial metric of the value of business investments and expenditures. It is a ratio of Net Benefits to Costs expressed as a percentage.

This formula can be expressed as:

```
[monetary benefits – cost of the training) / cost of the training] x 100
```

For example, evaluation research determines that there is a 10 percent increase in the number of sales following the implementation of a selling skills training program for an organization's sales personnel. Other data from the organization's financial system reveal that each one percent increase in sales is equal to increased annual revenue of $25,000. Further, it is known that the training program cost $75,000. For this example ROI is calculated as:

```
[($250,000 - $75,000) / 75,000] x 100 = 233%
```

This means that for every $1 invested in the training program, the organization realized a net benefit of $2.33 in the form of increased revenue from additional sales.

1.3.1 Calculating ROI

ROI relates to a specified period of time, typically one to two years.

Once key objectives for training have been identified, you need to keep a good account of the data related to them (sales figures, number of customer support calls, productivity rates, overall overtime hours, days of absenteeism, and so forth), and then you will need to keep monitoring them *after* the training has been delivered.

First you measure all of the costs associated with the particular training program over this period:

- Analysis, design, and development costs
- Promotional costs
- Administrative costs
- Tutor costs
- Learner costs (time, expenses, lost productivity)
- Equipment and facilities costs
- Evaluation costs

Then you measure the financial benefits obtained over the same period:

- Labor savings
- Productivity increases
- Cost savings

Then you can calculate the ROI.

There are many approaches available, so it can be difficult to select the most appropriate one. It is important to focus on the following questions about the proposed training to be evaluated:

- Feasibility: Will it be ready in time? Will all potential participants have the necessary resources to attend this meeting? (For instance, do they all have access to Web cams to attend a live virtual classroom?)
- Accuracy: Will it address the problems it is supposed to fix, within the time frame we expect?
- Credibility: Are our instructors up to the task? Do we have experts in that field who can deliver the appropriate information?
- Costs: Will the cost be within the budget's constraints?
- Time: Will participants (including learners, managers, and others) be available to attend the training?

Generally, two approaches are better than one.

It is not unusual for the ROI in training to be an extremely large figure. Even when a portion of the improvement is attributed to other factors, the numbers can still be impressive. But it should be understood that ROI figures are not precise, though every effort is made to isolate training's effect. An ROI figure represents the best estimate given the conditions, time, and resources the organization was willing to commit.

1.3.2 A case study using live virtual classroom technology

In this section, we show a real case study in which a retail bank developed and delivered traditional instructor-led staff training for a custom application; we also show how running the same training using a live virtual classroom (LVC) technology could have helped them to improve their delivery time and costs.

Traditional delivery approach

The initial challenge was to train 700 users in 70 locations on a new custom software application which was to be deployed in all branches. Management, project leaders, and training specialists got together to discuss this project. They reached the following conclusions:

- The course would take 2 days to deliver per location (including travel time). It would be split into 3 modules: one general course for all employees, and the other two specific to business areas.
- They would require 12 instructors to travel to the different branches to deliver the training.
- It would take 5 weeks to deliver the training to all branches and employees.

- They would have to rent training rooms at each location.
- The course content would be developed in slide presentations and hand-outs.
- They would need to organize job coverage for the employees while they are involved in the training.

At the end of the project, they came up with the costs shown in Figure 1-3.

Initial costs	
Course development	$40K
Delivery	
12 instructors - 5 weeks	$110K
Instructor travel - 60 weeks	$69K
Training rooms - 240 days	$96K
Materials - 700 units	$15K
Student salary - 700 x 2 days	$480K
Total cost	**$810K**

Figure 1-3 Cost of course delivered with traditional methods

Live virtual classroom delivery approach

Taking into account the same training requirements, the IBM e-Learning experts came up with the following scenario.

- The customer would need to develop the same course in the same media (slide presentation and hand-outs).
- The course would be structured in the same three parts: Module 1 for all students, Module 2 addressed to 90% of the students, and Module 3 addressed to 66% of the students. Employees would not be expected to take the sessions which were not relevant to them.
- The customer would need to set up the appropriate infrastructure: servers, network, software, and licenses.
- Using an LVC, those same 12 instructors would take *8 days* to deliver the same content.
- All the instructors would be based at one central location; that is, they would not need to travel.

- Since the training was on-line, students could access it from their own workplace computers.
- Hand-outs would be supplied as well.
- No job coverage would be required, because the modules only took 2 hours, and colleagues would be able to cover for each other.
- The sessions would be recorded and could be re-run as refreshers or for training new employees.

This analysis yielded the costs shown in Figure 1-4.

Initial costs	
Course development, infrastructure, servers...	$250K
Delivery	
12 instructors - 8 days	$35K
Instructor travel	$0
Training rooms	$0
Materials - 700 units	$15K
Student salary: (700 x 2+630x2+467x2) days	$160K
Total cost	**$460K**

Figure 1-4 Cost of course delivered using live virtual classroom techniques

Cost benefits

The initial obvious advantage of virtual classroom training is that it can be delivered in a faster way; 96 versus 300 man-days worth of training. In some situations, fast delivery is critical for an organization's performance.

In addition to this, Figure 1-5 shows the cost comparison of both approaches, and it gives us a good picture of the cost implications of each approach.

	Trad		LVC
Course development	$40K		$250K
Delivery			
12 instructors	$110K		$35K
Instructor travel	$69K		$0
Training rooms	$96K		$0
Materials - 700 units	$15K		$15K
Student salary	$480K		$160K
Total cost	**$810K**		**$460K**
Difference: $350K			

Figure 1-5 Cost comparisons

Since the traditional learning initial costs are much lower, as they do not require any specific setup (except the availability of a business application such as Freelance or PowerPoint), the live virtual classroom approach seems to be far more expensive.

The *initial development costs* in the live virtual classroom approach include course development, as well as infrastructure, hardware, software, setup, and consultancy fees. Although $210K (net cost excluding course development as such) is a big figure, this is an expense which can be *amortized* across subsequent training sessions. Moreover, if the course is recorded, it can be re-run for refresher or new staff training purposes.

Also, the *cost in instructor salaries*[2] using the live virtual classroom approach amounts to about 30% of traditional training costs. However, if you have internal instructors, you can use them to deliver other courses, thus saving additional outsourcing costs.

An obvious difference is in *travel and training room*[3] *cost savings*. Together they add up to 20% of the overall traditional delivery cost. Notice that with these savings only, you are paying for almost 80% of the cost of initial live virtual classroom setup and required infrastructure.

Finally, if we aggregate all the potential savings together, we see that even with only one course you are better off cost-wise using live virtual classroom, and the

[2] We are considering, roughly, an average cost of $1800 per instructor per week.
[3] We take an average rental fee of $400 per day for a room for 10-15 attendants.

savings have paid for an infrastructure that can be used to deliver subsequent training sessions in other subjects.

As you can see from this example, live virtual classroom can help you reduce both training costs and delivery times. The live virtual classroom approach also allows you to target specific training to the people who require it. Finally, the absence of travel is also a benefit for both instructors and learners.

1.4 IBM — an e-Learning company

e-Learning has become a big thing at IBM.

IBM is both selling and using e-Learning. IBM Global Campus, the central learning area for all IBM employees, is a great example of how to use e-Learning in a corporate environment. IBM Global Campus offers thousands of courses ranging from business etiquette to programming C++. There are various delivery types, ranging from classroom-based training to LVC sessions and Web-based training. There are some excellent examples of blended solutions, such as a project management program consisting of 3 days of classroom training that requires learners to complete a Web-based course before going to class. Currently IBM Global Campus is only accessible to IBM employees. In the near future, IBM Learning Services and Lotus Education will start offering public e-Learning programs through IBM Global Campus.

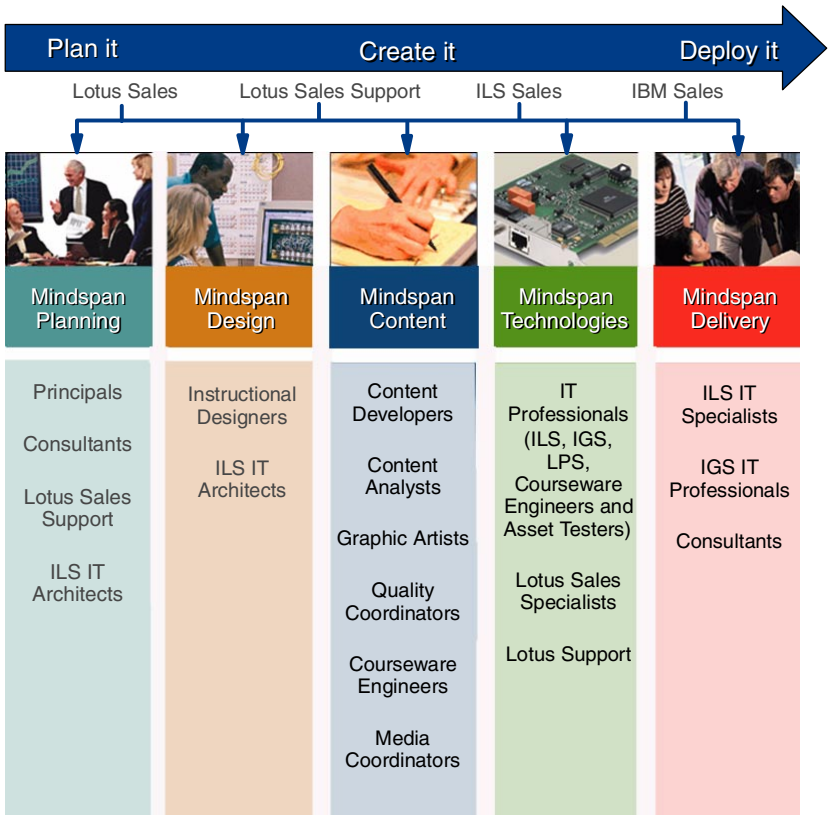


Figure 1-6 IBM Mindspan organization

Selling the e-Learning concept is important for IBM. There is a dedicated team, IBM Mindspan, focused just on the delivery of e-Learning products and services. IBM can be an ideal partner for customers in the e-Learning area. IBM can deliver a complete e-Learning solution. A wide range of e-Learning products, including Lotus LearningSpace, can be packaged with IBM hardware. For implementing e-Learning solutions, IBM Learning Services has the educational expertise while other IBM Global Services departments can deliver technical expertise.

2

Blended learning

e-Learning is technology-enabled learning. There are many types of e-Learning technology, including the live virtual classroom. In this chapter we discuss the various types using the IBM 4-Tier Learning Model. We also discuss blended e-Learning: combining a variety of complementary e-Learning types.

2.1 The IBM 4-Tier learning model

To really acquire and master a skill, it is not sufficient to simply listen to someone explain it to you. You need practice and experience. Gaining skills can be managed individually, but as any educational study will show, people learn better in teams.

The same is true in an e-Learning environment. Instructor-centric models, for example Web lectures, are fine for information transfer. To really acquire a skill, however, the model has to allow the learner to take control and practice.

True learning of how to apply a skill requires interaction. Simple interaction with a computer will allow the learner to acquire basic skills, but in order to progress, greater levels of interaction and collaboration are required. This could be among many learners, or between the learner and the instructor, or both.

Ultimately, to really master a skill, the learner needs to apply that skill in a real-life situation. As we progress up the learning chain, the level of collaboration has to increase.

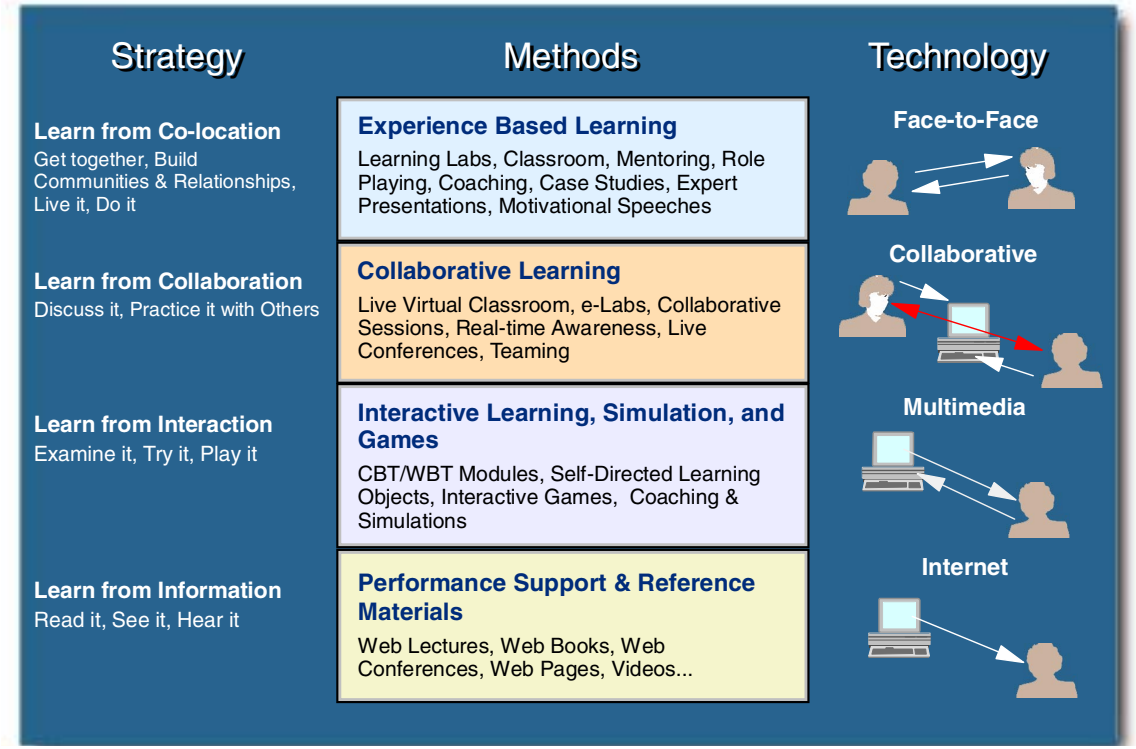


Figure 2-1 The IBM 4-Tier learning model

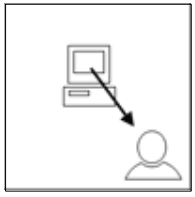
Similarly, in an e-Learning model the level of interaction and collaboration has to increase if e-Learning is really to help a learner achieve mastery in a specific skill. This increase in collaboration is one of the key principles behind the IBM 4-Tier Learning model. This is the model with which IBM is now building its own internal education. The model describes the educational and collaborative spectrum. It starts with low-level information exchange, and extends to mastery.

It is also a model which is not 100% e-Learning. This model assumes that e-Learning will never fully replace traditional classroom training. There will always be the need, at some stage in skills development, to get learners together with an expert.

The model also allows courses to be developed both horizontally (courses in one tier, or e-Learning type) and vertically (courses which span multiple tiers). These solutions are known as *blended solutions.*

Key aspects of the four tiers are summarized in Figure 2-1.

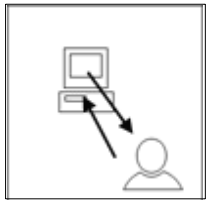
2.1.1 Tier 1: Learn from information



Read it, see it, hear it. This is basic knowledge transfer, ideal for new product launches, corporate strategy, or organizational announcements. These are materials where learners can quickly and simply get the information they need. Examples of materials used in Tier 1 e-Learning are:

- Informational Web pages
- Online Help
- Streaming audio
- Videos
- Recorded live virtual classroom sessions
- Web books
- Web lectures

2.1.2 Tier 2: Learn from interaction

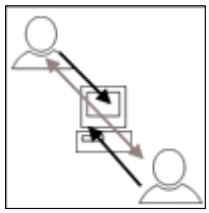


Try it, practice it. Interaction in this tier is between the learner and a computer system—not with other learners or teachers. These are self-paced activities. The materials used in Tier 2 are usually specially designed for learning purposes. Various vendors, like SmartForce and NetG, offer standard course materials. Organizations can decide to create these materials themselves using tools like AuthorWare, Dreamweaver (both

from Macromedia) or IBM Knowledge Producer or Simulation Producer. Examples of e-Learning tools in Tier 2 are:

- CBTs/WBTs
- Interactive games
- Simulation programs
- Self-directed learning objects
- Quizzes, tests, and assignments corrected by the system

2.1.3 Tier 3: Learn from collaboration



Discuss it, practice it with others. Communication is facilitated by technology, which means that learners and teachers can work from different places. Collaboration tools enable learner-to-learner communication, group learning, or learner-instructor communication. Combining all these can form a sense of learning community, like the one illustrated in Figure 2-2.

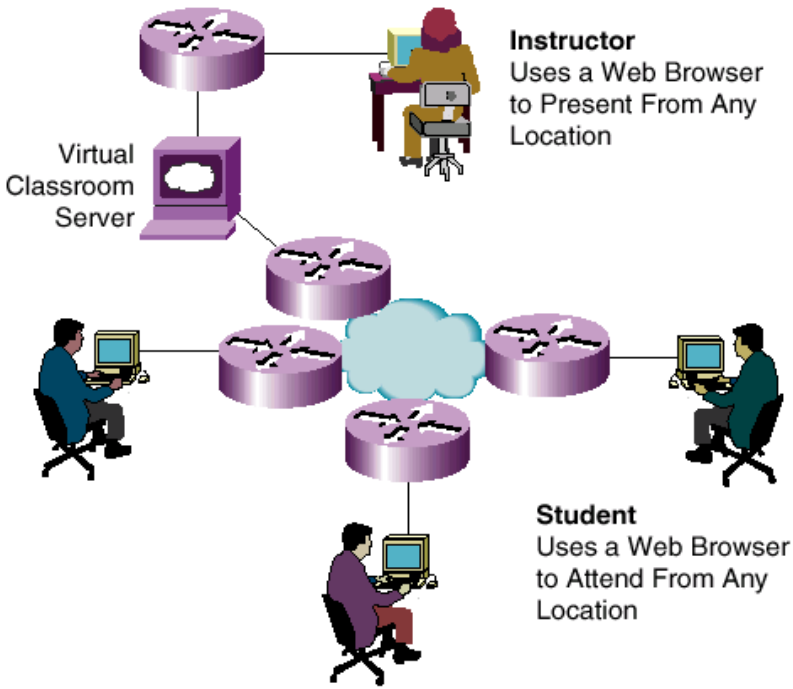


Figure 2-2 A typical e-Learning environment

Collaborative e-Learning can be asynchronous or synchronous.

Asynchronous collaboration

Asynchronous collaboration tools do not require learners and teachers to be online at the same time to communicate with each other. Messages, questions, or assignments can be posted and answered at any moment. Others can read them and respond when they are online. Figure 2-3 compares asynchronous resources and materials with those of synchronous e-Learning.

The following are examples of asynchronous tools that can be used in an e-Learning environment:

- Discussion forums
- Question and answer forums
- Individual or group assignments corrected by teachers
- TeamRooms
- E-mail

Synchronous collaboration

Synchronous collaboration provides online communication in real-time. Teachers and learners come together electronically at a given time, without leaving the workplace or home; they use tools such as chat, audio, video, and whiteboards. Figure 2-4 contrasts the need in synchronous e-Learning for being present at the same time as other students with the time flexibility of asynchronous e-Learning.

The following are examples of synchronous tools used for learning purposes:

- Live virtual classroom
- Instant messaging
- eMeetings

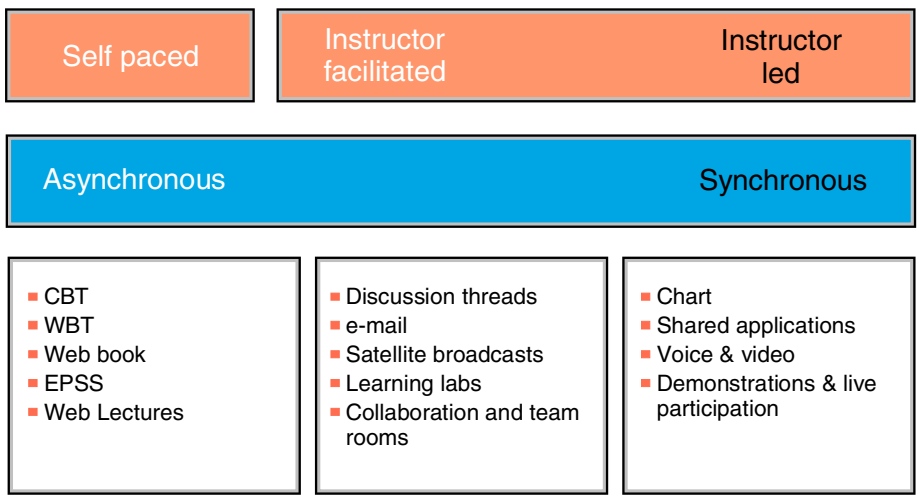


Figure 2-3 Synchronous versus asynchronous collaboration

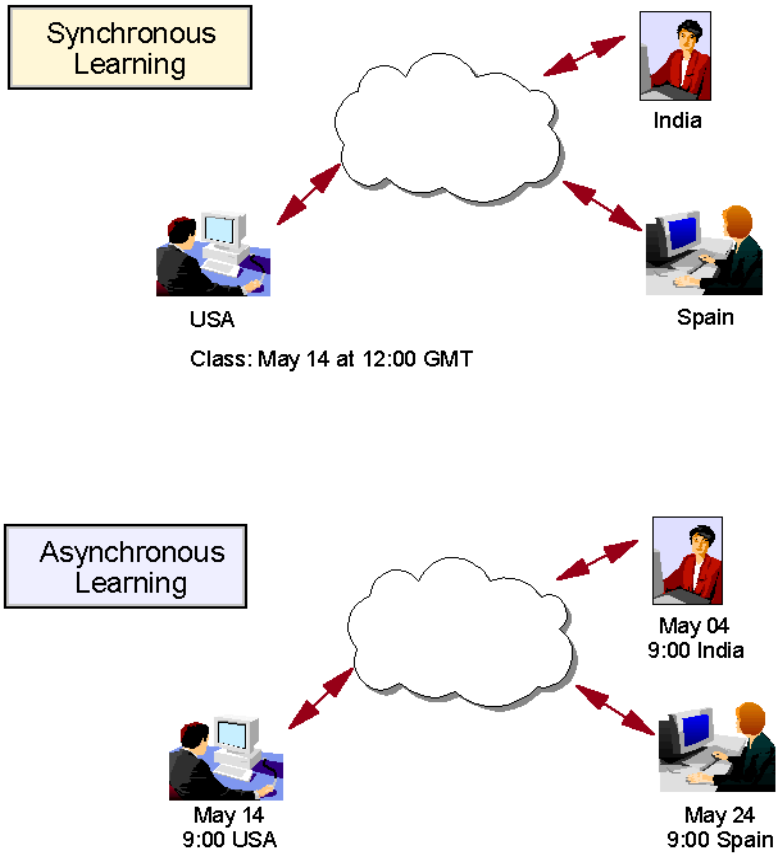
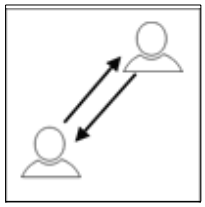


Figure 2-4 Synchronous and asynchronous collaboration in e-Learning

2.1.4 Tier 4: Learn from co-location



Live it, experiment. Finally, classroom and mentoring take their place. Tier 4 represents high-level learning activities that do not rely on technology. There will always remain situations where traditional classroom-based training will be most effective; where learners need to get together with an expert, and physically interact with others or with objects.

2.2 Examples of blended solutions

Blended learning means different things to different people:

- To combine different modes of Web-based technology in a single learning program (live virtual classroom, and asynchronous collaborative work).
- To combine various pedagogical approaches (for example constructivism, behaviorism, and cognitivism) to produce an optimal learning outcome with or without instructional technology.
- To combine any form of instructional technology (such as videotape, CD-ROM, Web-based training, film) with face-to-face instructor-led training.
- To mix or combine instructional technology with actual job tasks.

Before looking at some different applications of blended learning, let's look at why blended learning has been so readily adopted. Blended learning satisfies the following requirements:

- Different learning objectives require different approaches.
- It allows corporations to gradually introduce learners to e-Learning, making adoption more natural.
- Working in a blended environment enables instructors and instructional designers to develop the skills needed for e-Learning and to gradually transfer existing programs and resources.
- Some existing resources, such as CD-ROM CBTs, may not be suitable for conversion to another format (backwards re-purposing). A blended solution allows the investment in such materials to be realized.

Here are some of the ways in which you could introduce e-Learning to your existing training programs to create a blended solution:

- *Put assessment online.* One of the easiest places to start is to move a test or assessment online. A financial services organization created a blended solution for a customer service course. They kept their traditional instructor-led, two-day course and put the multiple-choice test online. This allowed the training department to automate scoring and made it easier to track and report scores.
- *Follow up with a community of practice.* A technology company teaching their IT staff a new programming language created a threaded discussion for learners to access after training. This allowed learners to stay in touch with classmates and to ask questions, share insights, and post resources.
- *Make reference materials available.* A government organization, as part of the training for their support staff, provided links to reference materials for learners to use after the training program. The links enabled learners to

explore topics in greater depth and reduced their reliance on three-ring binders of information, which traditionally became outdated in a matter of months.

- *Deliver pre-work online.* The IBM management development program Basic Blue™ is a great example of pre-work being done online. Managers attending Basic Blue must complete pre-work online courses before being issued tickets and travel authorization for the face-to-face portion of the program. Online pre-work saves costs associated with shipping material, and the ability to track scores ensures that learners show up prepared.
- *Provide online office hours.* A company that has invested in a set of CD-ROM courses to teach a new desktop application uses online office hours (using Lotus Sametime) to supplement the CD-ROMs. Learners who want to add the human touch can get help from a real person who can answer questions, help learners devise strategies for learning in a self-paced mode, or simply provide moral support.
- *Use mentoring/coaching as a tool.* A manufacturer training service engineers in a five-day, face-to-face class uses online coaching as a way to extend the classroom experience. They found that learners needed someone to talk to after the class who could help them with problems they encountered in the field. Using a coach, graduates of the face-to-face program were able to ask questions and those questions enabled the coach (classroom instructor) to improve the face-to-face classes.
- *Provide job aids.* A pharmaceutical company delivering an online course for new sales people supports the course with high-tech job aids. The course teaches a propriety selling method linking specific strategies with each phase of the sales cycle. After completing the course, learners are issued a personal digital assistant (PDA) to help them organize their sales calls and the PDA provides job aids. These job aids allow the reps to review the selling strategies and to access short hints from the course.
- *Access experts.* After a recent training event in Singapore, IBM Mindspan sales engineers wanted to learn more about the architecture of the products shipping later this year. The people best able to answer questions and explain the architecture were development experts in Cambridge, Massachusetts, USA. As a follow up to the face-to-face class delivered in Singapore, a live virtual classroom program was created, providing sales engineers in Asia with access to the developers in Cambridge. The session included application sharing, white boards, and some document sharing.
- *Create a "lifeline."* At IBM we have a lifeline application called Blue Pages.™ It is a telephone directory with the added ability to find people with the skills we need. We can search for people who are experts in artificial intelligence, the Americans with Disability Act, or translation and international skills for bi-directional languages. This kind of online tool allows our learners to access

expertise outside the formal classroom and to get answers quickly from the best sources.

- *Maximize e-mail and messaging.* E-mail is probably one of the least appreciated ways of extending blended learning solutions. Using e-mail distribution lists before, during, and after learning events is powerful. You can send learners attachments with new information directly, point learners to additional resources, suggest advanced classes, and remind learners of when they need to get re-certified.

2.3 Live virtual classroom sessions in context

Use Table 2-1 as a starting point for deciding if an e-Learning type is appropriate, relative to other learning solutions.

Table 2-1 Learning solution suitability matrix

Learning solution	Suitable for...	Unsuitable for...
Tier one: learning from information		
Static Web pages	► Just-in-time learning ► Broadcasting ► Self-paced ► Distributed learning ► Content that changes ► Low development time and cost	► Collaboration ► Coaching
Audio and video clips	► Intuitive learning ► Step-by-step instructions	► Content that changes
Tier two: learning from interaction		
Interactive CD-ROM (CBT)	► Off the shelf content ► Multimedia content ► Delivering lots of content ► Static content ► Self-paced ► Distributed learning ► Self-assessment	► Low budget development ► Rapid development ► Collaboration ► Content that changes ► Instructor assessment of students

Learning solution	Suitable for...	Unsuitable for...
Web Based Training (WBT)	► Standard off the shelf content ► Self paced ► Changing content	► Collaboration ► Instructor assessment of students ► Self-assessment
Tier three: learning from collaboration		
Threaded discussion	► Self-paced ► Distributed learning ► Content that changes ► Collaboration	► Getting instant feedback ► Broadcasting ► Instructor assessment of students ► Self-assessment
e-Meeting	► Broadcasting ► Getting instant feedback ► Low development time/cost ► Distributed learning ► Collaboration ► Unstructured sessions	► Monitoring take-up ► Assessment ► Delivering lots of content ► Long sessions ► Self-paced
live virtual classroom	► Broadcasting ► Getting instant feedback ► Motivating people ► Low development time/cost ► Distributed learning ► Collaboration ► Instructor assessment of students ► Self-assessment ► Structured sessions	► Delivering lots of content ► Long sessions ► Self-paced
Instant Messaging	► Informal learning ► Online office hours ► Coaching	► Tracking and tracing ► Delivering learning content ► Organized training session

Learning solution	Suitable for...	Unsuitable for...
e-mail	► Informal learning ► Communication ► Multimedia content ► Delivering lots of content	► Self-assessment ► Content that changes ► Getting instant feedback ► Broadcasting ► Self-paced
Tier four: learning from co-location		
Face to face	► Motor-skills training ► Hands on training ► Coaching ► Motivating people ► Getting instant feedback ► Collaboration ► Longer sessions ► Instructor assessment of students	► Distributed learning ► Self-assessment ► Self-paced ► Content that changes

Use Table 2-2 as a guide to the effectiveness of learning solutions that exist in the separate tiers, based on specific criteria.

Table 2-2 Learning solutions by tier

Criteria	Tier 1	Tier 2	Tier 3		Tier 4
			Async	Synch	
Distance learning	X	X	X	X	
Just-in-time learning	X	X	X		
Just-in-time development	X			X	X
Low development cost	X			X	X
Low delivery cost	X	X	X	X	
Collaborative learning			X	X	X
Self-paced learning	X	X	X		
Structured programs		X	X	X	X
Instructor-led			X	X	X
Self-assessment		X	X	X	
Instructor assessment of students			X	X	X
Off-the-shelf third party content	X	X	X		
Broadcasting	X		X	X	
Complex topics		X	X	X	X
Tracking learner progress		X	X	X	X
Mentoring			X	X	X
Hands-on experience					X
Delivery to large groups	X	X	X	X	

3

e-Learning infrastructure components

In previous chapters, we discussed the various types of e-Learning and their advantages and disadvantages. In this chapter, we present the infrastructure components that are needed to deliver the various e-Learning types.

3.1 Overview of e-Learning infrastructure components

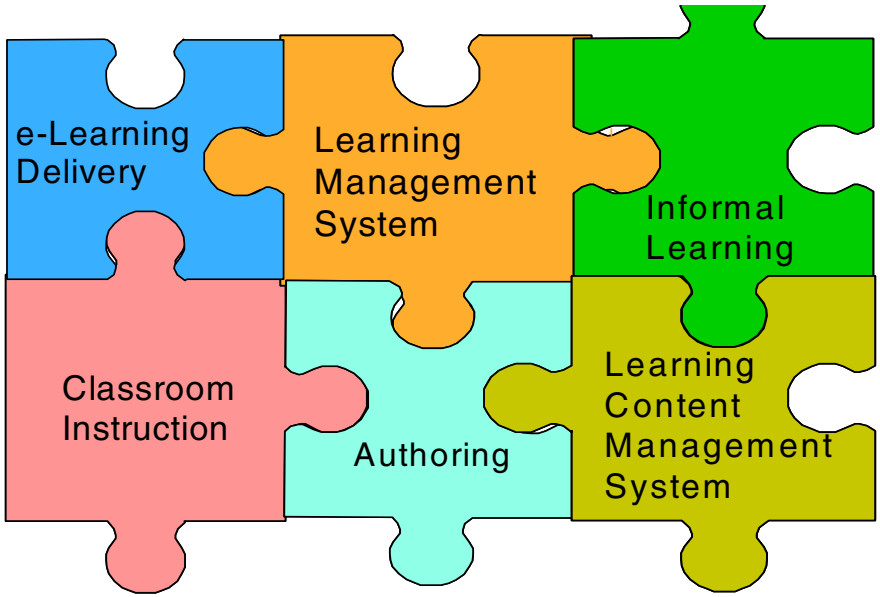


Figure 3-1 A total learning system

Writing a generic description about the components of an e-Learning infrastructure is difficult. The terms included in Figure 3-1 are widely used; however, each vendor has its own interpretation. Many products are based on a mixture of functionality (like a learning management system with content authoring capabilities) which makes them hard to position with each other and with other more generic Information and Communications Technology infrastructure components. In the following sections, we present an overview of these components.

3.2 Learning management system

A learning management system (LMS) plays a key role in the e-Learning environment. Its primary function is to manage learner information, administration, and access to courses. It is most often referred to as the “learning portal” that links users with the various learning activities. In some cases, it is used to manage the course catalog and to link different types of e-Learning activities together in order to deliver a blended solution.

An LMS often delivers the following functionality:

- Student enrollment
- Student administration
- Tracking management and information scoring
- Reporting
- Curriculum management
- Competency management
- Skill gap analysis
- Classroom-based training management
- live virtual classroom management
- Sessions and learning activities scheduler
- Learning resource management
- Course catalog, including advanced search capabilities

An LMS usually relies upon a standard HTTP server for delivery and uses a relational database system for its data storage. Examples of LMS systems are Saba, Docent LMS, Blackboard, Oracle LMS, and TopClass.

The LearningSpace 4&5 Core module is officially not positioned as an LMS (since it does not provide some of the typical LMS functionality, such as support for classroom-based training), although in Figure 3-1 it would probably best fit in the LMS part. IBM/Lotus will ship a new full-blown LMS product later this year.

3.3 e-Learning authoring tools

e-Learning authoring tools usually refers to tools that are used to create asynchronous Web-based Training or Computer-Based Training courses. Some are more sophisticated than others. The more sophisticated ones are often programs that must be installed on the user's local computer, and that require some technical expertise to use.

Some of these authoring tools may be generic internet authoring environments used to create learning materials, such as Macromedia Authorware, Macromedia Dreamweaver and IBM Knowledge Producer and Simulation Producer. There are also light versions of such tools that do not require any technical skills and that are available through a Web browser.

3.4 e-Learning delivery systems

e-Learning delivery systems are the programs used to render learning content to the learners. There are many different types of e-Learning delivery systems on the market; in the following sections we will briefly describe some of them.

3.4.1 WBT delivery

Web-based training is usually based on Web standards (.html, .gif, Flash objects, and so forth). These materials can be delivered by any standard HTTP server, like Apache, IIS, or Domino. Standard NetG or SmartForce courses are examples of WBT materials that can be delivered by any HTTP server. Some authoring environments ship with a proprietary delivery server.

3.4.2 Asynchronous collaborative delivery

Lotus LearningSpace Collaboration 4&5 offer asynchronous discussions. LearningSpace 3.x also offers asynchronous instructor-moderated assignments. Both tools are based upon standard Domino applications and are delivered by the Domino HTTP task. Other asynchronous collaborative products may be based on Java programs served by a standard HTTP server and using an underlying relational database.

3.4.3 Synchronous collaborative delivery

live virtual classroom systems run either standalone or integrated with an LMS. Some live virtual classroom products rely on a separate HTTP server for course delivery and an external LDAP server for user management and authentication.

Lotus LearningSpace 4&5 offer a separate Collaboration Module which also includes live virtual classroom functionality. However, these collaboration modules cannot be used separately from LearningSpace 4 or 5 Core Module from a licensing point of view.

The new IBM Lotus LearningSpace-Virtual Classroom will be delivered in two modalities:

- Standalone, aimed at the low end of the learning market, such as internal training and informal sessions
- LMS integrated, aimed at high capacity, scalable use

Other live virtual classroom products on the market include Centra Symposium, Placeware, WebEx, Interwise, and Microsoft Netmeeting. Some of these products are dedicated e-Learning products, while others are more generic e-Meeting products that can be used in a learning context.

3.5 Learning content management systems

A learning content management system (LCMS) is a framework used to manage the design, development, and reuse of learning objects. It is a multi-developer environment. The output content can be used in a variety of learning methods, like CBT, WBT, Personal Digital Agenda (PDA) format, or print.

From a technical point of view, the functionality can be very similar to generic Web content management systems. Examples of LCMSs are Docent CDS/Outliner, Centra Knowledge Server, and TopClass.

3.6 Informal learning

Informal learning is perhaps the most popular and least recognized way of learning. Even if you do not realize it, you are constantly experiencing informal learning in your workplace, by way of informal discussions with your colleagues, e-mails, and the like. In the following sections we present a few examples.

3.6.1 Instant messaging systems

Instant messaging can be a very useful tool within a learning environment. It can be used for all kinds of informal learning or social activities within a learning environment.

- CEOs can organize virtual office hours so their staff can communicate with them and get the information and direction they need.
- Learners can communicate with each other or with their mentors.
- Remote learners feel part of a group, and that they are not “alone” out there.
- Employees and colleagues can contact experts or mentors on a particular subject and obtain instant knowledge.

Some instant messaging systems require local clients installed in the users’ PCs, while others are based on browser plug-ins which can be downloaded on first use.

Another important aspect of instant messaging systems to consider when integrating them in a learning environment is LDAP compatibility. LDAP is a standard Internet directory used as a central user management system, enabling such functionality as authentication using single sign-on (SSO).

There are various public services that offer free instant messaging, like ICQ, AOL and MS Messenger. If a company decides to deliver its own instant messaging system, Lotus Sametime is a good candidate.

3.6.2 Knowledge management systems

Knowledge management (KM) systems can be a part of a learning solution. KM and e-Learning used to be two separate worlds, but they are now starting to converge. A KM system can, for instance, allow curriculum planners, instructors, or learners to search for subject matter experts in the corporation, or find existing relevant materials within a company's intranet. Examples of KM systems are Lotus Knowledge Discovery Server (KDS) and Autonomy.

Part 2

IBM Lotus LearningSpace - Virtual Classroom

In this part we discuss some of the features of the live virtual classroom and the benefits they provide. We also introduce some of the tools available and describe their benefits.

This redbook introduces you to the upcoming virtual classroom component of IBM Lotus LearningSpace V1. At the time of writing, the product was still in development. So we wrote about its design and functions, then used the current LS 5.01 Collaboration component to illustrate those functions.

4

IBM Lotus LearningSpace - Virtual Classroom introduction

In this chapter, we describe the IBM Lotus LearningSpace - Virtual Classroom. We discuss its benefits and limitations as compared with classroom-based and asynchronous learning.

4.1 Definition of a live virtual classroom

A live virtual classroom (live virtual classroom) is a scheduled online teacher-led training session where teachers and learners interact synchronously using computers linked to a network or the Internet. This interaction is possible thanks to a variety of technologies such as audio, video, chat, whiteboard, and application sharing.

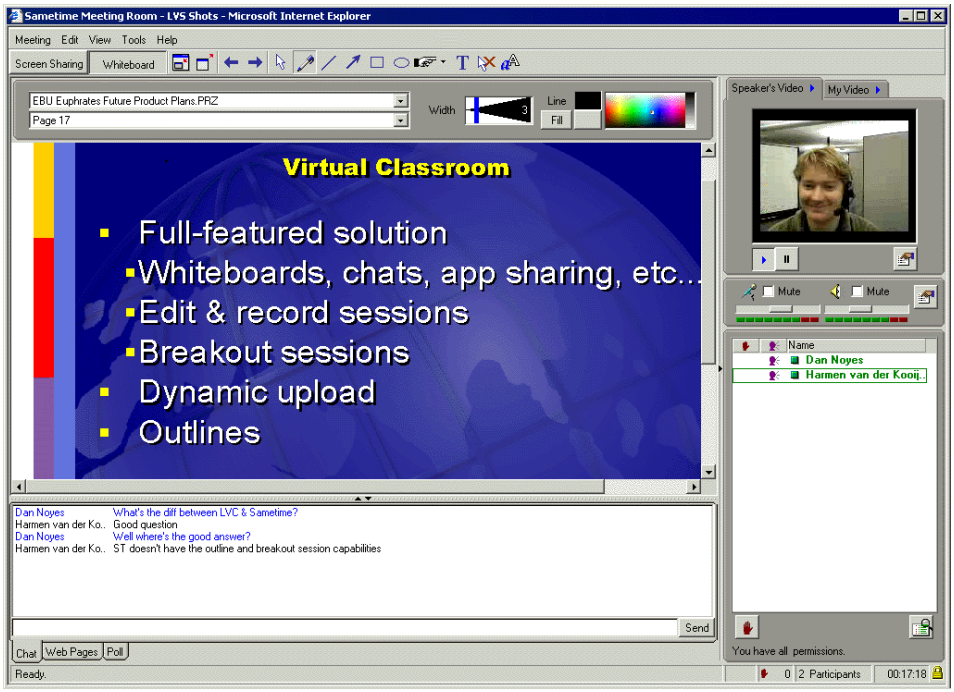


Figure 4-1 An overview of the live virtual classroom and its tools

4.2 Features of the LearningSpace - Virtual Classroom

LearningSpace - Virtual Classroom provides a framework for designing, scheduling, managing, and delivering live virtual classroom courses, as well as managing participants.

LearningSpace - Virtual Classroom offers the following functionality:

- live virtual classroom course builder: provides the framework for building outlines, selecting live virtual classroom tools, authoring assessments, and so forth

- Live virtual classroom course scheduling: provides the ability to schedule courses
- Notifications: handles course invitations and reminders
- Live virtual classroom course catalog: lists all available courses, or the courses in which a student has enrolled
- Enrollment manager: administers the enrollment and admission of students in courses
- Administrative tools: includes user management, enrollment reports, security settings, and the like

Not all the functionality of LearningSpace - Virtual Classroom is based on synchronous technology: the synchronous functionality is delivered by Lotus Sametime technology while the asynchronous functionality is based upon Lotus QuickPlace technology.

LearningSpace - Virtual Classroom can be used either as a standalone product or in combination with a learning management system.

Virtual classes can be scheduled as either moderated or broadcast sessions. Moderated sessions are more suitable for smaller groups. All participants can interact and communicate with each other. Broadcast sessions allow less interaction. However, they are more efficient (and require less bandwidth) and are therefore more suitable for a larger audience.

4.2.1 LearningSpace - Virtual Classroom standalone

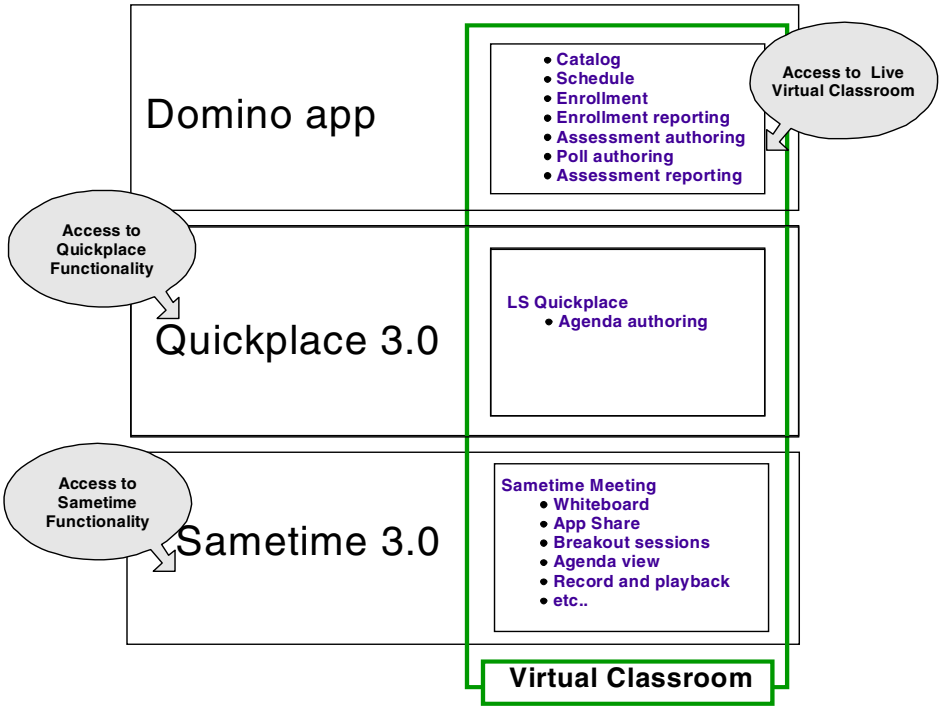


Figure 4-2 LearningSpace - Virtual Classroom in standalone mode

LearningSpace - Virtual Classroom used in standalone mode offers a simple catalog and enrollment functionality. The catalog displays only live virtual classroom courses, so no other types of e-Learning can be accessed through it. Learners can search the catalog and enroll in a course (enrollment can also be managed centrally in LMS). Learners and instructors have an overview of the live virtual classroom session for which they are enrolled. Course participants can launch the live virtual classroom session from this place.

4.2.2 LearningSpace - Virtual Classroom integrated with LMS

LearningSpace - Virtual Classroom can also be integrated with the new IBM Lotus Learning Management System. In such situations the LearningSpace - Virtual Classroom session will be accessed and managed from the LMS environment. LearningSpace - Virtual Classroom can also be integrated with other third-party LMS products like Docent, Isba, or mySAP Learning Solution. Figure 4-3 shows what the integration with an LMS looks like from a functional point of view.

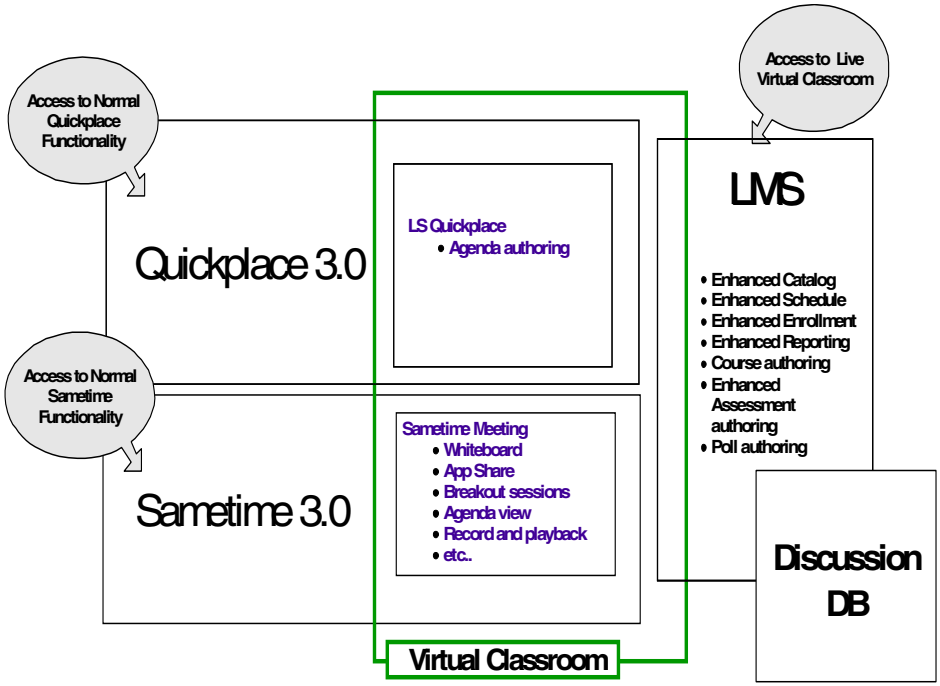


Figure 4-3 LearningSpace - Virtual Classroom integrated with an LMS

Integrating LearningSpace - Virtual Classroom with an LMS has many benefits:

- live virtual classroom sessions can be part of a blended e-Learning approach.
- All learning activities, including live virtual classroom sessions and classroom-based training, can be managed from one place.
- All learning activities, including the live virtual classroom sessions, can be launched from one place.
- Tracking and scoring information of all learning activities is stored in one place.
- **Note:** IBM Lotus LearningSpace - Virtual Classroom cannot be integrated with the current LS 5 Core module.

4.3 Differences between Sametime and LearningSpace - Virtual Classroom

IBM Lotus LearningSpace - Virtual Classroom is based upon Lotus Sametime 3.0. They both offer e-meeting functionality, but the LearningSpace - Virtual Classroom product adds some additional e-Learning capabilities.

Functions that exist in the LearningSpace - Virtual Classroom product but not in Sametime include:

- Course catalog
- Enrollment management
- Pre-defined question sets
- Pre-defined assessments
- Pre-defined outline
- Advanced breakout sessions capabilities
- Integration with the new IBM/Lotus LMS product

Lotus Sametime does offer some functionality that is not part of the LearningSpace - Virtual Classroom license. Some of this functionality can be interesting for integration with an e-Learning solution, such as:

- Sametime WebConnect client (instant messaging and awareness)
- Asynchronous discussion forums´

4.4 Live virtual classroom benefits

In this section, we discuss the benefits of the live virtual classroom by comparing it with both traditional classroom-based and asynchronous Web-based training. We do not discuss cost analysis here, since these benefits were discussed in Chapter 1.

4.4.1 Benefits versus classroom-based training

Removes geographical barriers

Similarly to other e-Learning technologies, live virtual classroom allows learners and teachers to attend a single live training session from any place in the world, as long they are connected to a corporate network or to the Internet. This solution offers a much broader audience and cheaper solution than a single traditional classroom-based training session. Think, for example, of the ability to instantly share the expertise of a research and development department with the sales employees across the world.

More dynamic resource model

Traditional learning environments are very resource intensive and relatively inflexible. They usually require classrooms, furniture, writing materials, and the like. Both under- and over-capacity can be very expensive in the traditional environment. For example, empty classrooms carry overhead, while under-capacity of physical classrooms leads to expensive outsourcing.

The live virtual classroom has a very different resource model. The marginal costs of adding live virtual classroom training are relatively insignificant compared to the traditional model.

Quicker to organize

The speed of live virtual classroom session deployment offers the competitive advantage of bringing new training to market a lot faster than before. live virtual classroom training can be organized a lot quicker than traditional classroom-based training. No classrooms or projectors need to be reserved, materials do not need to be distributed, route descriptions do not need to be sent out, and so forth. The sessions are easier to schedule since attendees do not need to travel. If teacher-led training needs to be delivered in other countries, the benefit of the live virtual classroom will be even greater.

Can be recorded

If learners miss a traditional classroom-based training session, they have little opportunity to engage in the learning experience that took place.

If an live virtual classroom session is recorded, students or teachers can replay it afterwards. Students can revisit the session, perhaps making connections and understanding ideas or concepts they had missed at the time of the session. Teachers have the unique opportunity of reviewing their own or their colleagues' performance.

This should not be considered as a replacement for active participation in an live virtual classroom session. Once recorded, an live virtual classroom becomes an asynchronous activity without the possibility of interaction.

Use of the live virtual classroom increases computer skills

Just as the traditional classroom provides students with a set of communication skills applicable to a specific task, the live virtual classroom provides them with new information and technical skills that benefit both individuals and their organizations, such as the usage of Web cams and audio. In general, it will make the participants more familiar with Internet capabilities.

4.4.2 Benefits versus asynchronous Web-based training

Just-in-time development

Preparing materials for an live virtual classroom session takes much less time than developing an asynchronous Web-based training session. Innovative or complex knowledge that is not yet published can be shared immediately with the rest of the organization. Scheduling an live virtual classroom session, creating an outline, and preparing presentation materials takes a matter of hours. When training needs to be delivered quickly, the live virtual classroom can be the perfect tool for the job.

Fast response to student needs

Since the live virtual classroom is a facilitated activity, teachers can respond immediately to student questions and feedback. In an asynchronous environment, the student usually has to wait at least a few hours to receive an answer to a question.

Encourage participation

Asynchronous environments are notoriously difficult to maintain when student participation is poor.

When working in a live virtual classroom environment, the teacher has a variety of tools and methods to monitor and stimulate participation in real time.

Rich inter-personal communication

Many types of e-Learning do not offer any communication or collaboration. Asynchronous collaboration does allow students and teachers to interact, but it is not as direct as in a traditional classroom.

The live virtual classroom does offer this kind of interaction. Students can talk to the teacher and to each other. Although this communication is not as intuitive and rich as in the traditional classroom, it still can help students learn.

Teacher guidance

Teachers are key to facilitated learning. They motivate students, introduce new topics, take care of group processes, and so forth. The live virtual classroom allows them to immediately respond to the students' needs.

More intuitive

The live virtual classroom uses many metaphors from the traditional classroom with which learners are familiar, including classroom, whiteboard, and hand raising. Because of the use of audio and video, communication is more natural and open.

4.5 Live virtual classroom limitations

Depending on the situation, some of the benefits may become disadvantages. Consider the following issues before opting for the live virtual classroom.

4.5.1 Limitations versus classroom-based training

Students and teachers need to become familiar with the tools

Students and teachers are familiar with the workings of a traditional classroom. They understand the concepts of handraising, the whiteboard, assignments, and so forth. Organizations should realize that everybody needs to become familiar with the way the live virtual classroom works before live virtual classroom-based training can be effective. Participants in an live virtual classroom session should have at least some computer literacy.

Not suitable for hands-on training

There are many situations in which the learner needs to interact physically with elements, tools, situations, and the like. In this case, the live virtual classroom cannot provide such service. An live virtual classroom could be used for discussing the theory about how to build a house, but the students will still require hands-on training.

Difficult to verify if everybody is paying attention

Compared to the traditional classroom, it is more difficult in an live virtual classroom session to see if everybody is paying attention. People might just walk away from their PC without anybody noticing. There are several ways to keep people's attention and make sure they interact, but it will always be more difficult than in the traditional classroom.

Not suitable for sessions longer than two hours

If a teacher-led training session needs to take longer than two hours, you should consider organizing a traditional classroom-based session. However, you can always consider splitting up the training into multiple shorter live virtual classroom sessions.

No incentive effect

Training attendance sometimes requires some additional incentive. Traditional classroom-based training is often located at interesting sites, which make them more attractive to potential audiences. After an live virtual classroom, you cannot have a reception, nor can you hold it in a nice hotel.

Technical issues

The live virtual classroom relies more heavily on technology than the traditional classroom, both on the client site (the PC) and with respect to the infrastructure (server, network, or the Internet). Technical problems can disturb the progress of live virtual classroom training. Various tips to avoid technical glitches during live virtual classroom sessions are discussed in Chapters 7 and 8.

4.5.2 Limitations versus asynchronous Web-based training

Time dependency

One of the advantages of asynchronous Web-based training is that people can take the training at any time they want. Attending live virtual classroom training, however, is restricted to a certain scheduled time. This is a result of the live virtual classroom being a synchronous activity where all participants need to meet together at the same time. This is a particularly difficult problem when training is delivered across time zones. If time independency is an important issue, consider an asynchronous solution.

Not self-paced

An live virtual classroom session is teacher-led training. It is a synchronous group activity and as such it has a start and end time. The teacher will establish the tempo and set the appropriate level. This does not allow students the possibility of going through the materials at their own pace.

More logistic considerations

Running training in an live virtual classroom involves more logistics than asynchronous Web-based training. live virtual classroom sessions need to be scheduled, teachers need to be booked, and participants' PCs need to be prepared.

Facilitator, subject matter expert, or instructor needed

live virtual classroom sessions are led by a facilitator, subject matter expert, or instructor. These players need to be available and cost money. The time they need to prepare the session in advance needs to be scheduled as well.

5

Tools of the IBM Lotus LearningSpace - Virtual Classroom

A teacher in a traditional classroom has a variety of tools and methods to use during a class. IBM Lotus LearningSpace - Virtual Classroom is also based on a set of tools, many of which are metaphors for traditional classroom tools and practices. This chapter describes the live virtual classroom tools and explains their benefits and limitations.

This chapter does not discuss navigation in the LearningSpace - Virtual Classroom. This information can be found in the online help.

5.1 Communication tools

In this section we discuss the LearningSpace - Virtual Classroom tools that involve communication.

5.1.1 Real-time audio

Using real-time audio in an live virtual classroom session allows the participants to speak to each other as if they were in a traditional classroom or using phone conferencing. You might be surprised by the good quality of the audio when using headsets, even when limited bandwidth is available (a standard 64k ISDN line should be fine).

In order to enable this communication, the workstation of each participant needs to have:

- A sound board
- Speakers and microphone (preferably combined in a headset)

The session facilitator or producer controls who can speak. In smaller groups, they might wish to leave the microphone open for participants to chip in more spontaneously. The live virtual classroom user interface allows each participant to see who is speaking at any particular moment of the session from the icons in the participant list shown in Figure 5-1.

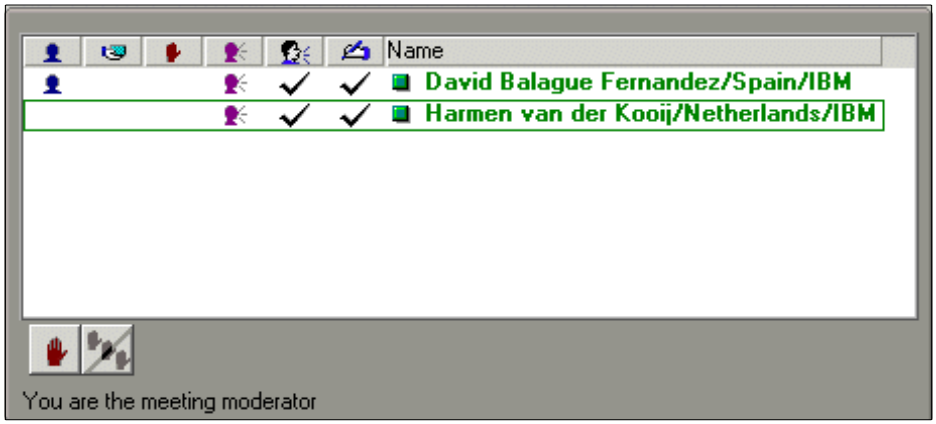


Figure 5-1 Participant list

The participant list shows the activity and permissions for every person in the session. These are (from left to right at the top of Figure 5-1): The moderator; Who is sharing or editing an application; Hand raising; Who is speaking; Who has permission to speak; Who has permission to edit the whiteboard.

In order to improve communication, participants can mute their own microphones, thus avoiding interference from external noise.

When the teacher or facilitator sets up an live virtual classroom session, they can choose between two audioconferencing modes:

- The *Automatic microphone mode* allows all participants to talk whenever they want to ask a question or express an idea, which simulates a normal discussion environment.
- *Request microphone mode* is like a debate or a more formal classroom environment, where the teacher gives permission to speak to the learners in turn. In an live virtual classroom session, the teacher or facilitator hands over the microphone to whoever requests it, and any participant can request the use of it at any time, although the facilitator is the only one who can hand it over. This is a more organized way of running a session, particularly in the initial stages, when people are not familiar with the technologies.

Figure 5-2 Request microphone mode

In request microphone mode, the authority to speak is requested by the participant and granted by the facilitator. It is then released by the participant, as shown in Figure 5-2.

LearningSpace - Virtual Classroomincludes functions such as the “Test Audio/Video” feature, which allows you to fine tune the audio or video settings of the participants. They can also set the volume of their microphones and sound.

Benefits

- Quick real-time interaction
- Learners and teachers use verbal communication in a natural way
- Informal
- Easy to convey and sense moods, tones, and intonation
- Audio can be used in parallel with other live virtual classroom tools
- Does not penalize learners who are weak writers or readers
- Encourages social interaction
- No telephone conference system needed

- No call costs above joining the session
- No need to keep lists of telephone numbers to call
- Allows the use of voice in multiple breakout sessions (not possible if a standard telephone conference system is used)

Limitations

- Busy internet or network traffic can affect performance and quality.
- Additional hardware needed (use of standard laptop speakers and microphone not advised).
- Usage of real-time audio might require adjustments to firewall settings.

Tips for using audio

- Try to work from a place without too much noise.
- Do not ask open questions.
- Use short sentences.
- Do not cover your mouth.
- Use a headset.
- If you do not like a headset use a standard walkman earplug instead of your laptop speaker (in combination with your laptop microphone).
- Use a conferencing microphone if you attend an live virtual classroom session with multiple participants in a room.

5.1.2 Real-time video

.If you have a Web camera (Web cam) attached to your workstation, you can use real-time video during an live virtual classroom session. A small animated image shows the person who is speaking at any given moment. The video image changes when the speaker moves. The use of real-time video in an live virtual classroom session makes communication even richer because it adds a face to the voice, and helps strengthen relationships with colleagues and fellow learners.

Due to bandwidth considerations, real-time video is limited to one person at a time. If the network efficiency deteriorates, and the image quality is not acceptable, the participants can opt to pause the image, thus increasing the overall performance of the system.

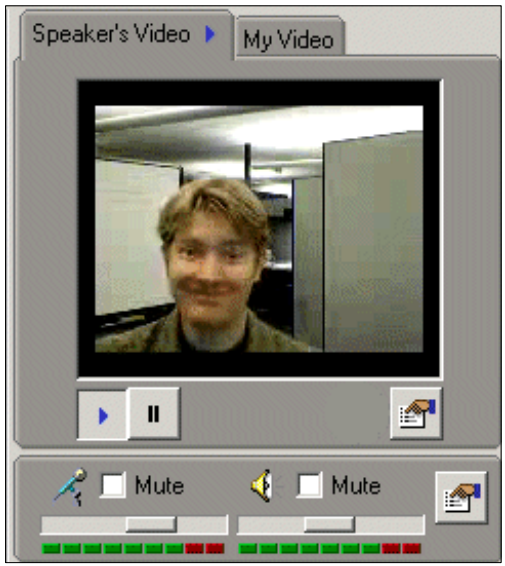


Figure 5-3 Real-time video adds a face to the voice

Benefits

- Adds a face to the voice. See Figure 5-3 for a good example.
- Richer communication through facial expression and body language.
- No video conference system needed.
- Facilitators can view and assess their own performance, expression, gestures, and so forth.
- Quick sharing of materials is possible when using a special document camera.

Limitations

- Most people are not yet familiar with using real-time video.
- Video images can be a distraction.
- The speaker does not see the audience when speaking.
- Video cannot be used to check for learners paying attention.
- Only the speaker's image is displayed.
- Requires a Web cam.
- Image quality is not perfect.

Tips for using video

- Experiment with different camera positions.
- Do not pay too much attention to the camera.
- Try to work from a place without other people walking around.
- Make sure that the room or place where you are sitting is well illuminated.

5.1.3 Chat

Chat is a way of instant messaging based on short text messages. These messages are displayed in the public chat area at the bottom of the live virtual classroom screen. Others can respond right away or park the question and respond later. Chat can be used in parallel with real-time audio and video. A group chat window is shown in Figure 5-4. This area can be collapsed when not in use.

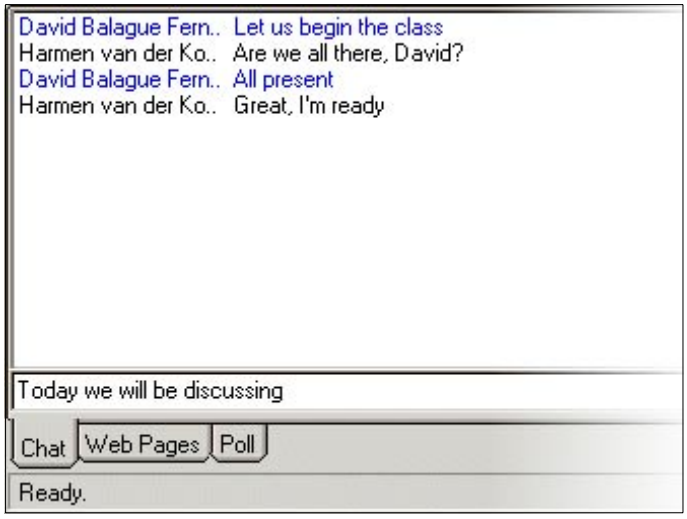


Figure 5-4 Group chat area

live virtual classroom participants can also start private chat windows with other individuals. A private chat window is only visible to the people within the chat meeting—which means that students might chat without the facilitator's knowledge. Once a private chat is started, others can be invited to join in. A private chat window is shown in Figure 5-5.

Figure 5-5 Private chat window

Benefits

- Text can be saved for later reference.
- Uses a limited amount of bandwidth.
- Allows participants to discuss issues as they arise, without disturbing the session.
- The facilitator or producer can “park” questions until the right moment to respond.
- Private chat allows participants to communicate without disturbing others and without the need to leave the live virtual classroom.
- Encourages short and direct communication.
- Can be integrated with translation server so participants can write and read in their preferred language.

Limitations

- Not adequate for those who read or type slowly.
- Slower than voice.
- Communication is less rich than audio.
- Needs careful moderation with large groups.
- Can cause distraction.
- You can be involved in multiple chats; but they cannot be “merged.”

- Chat cannot be suppressed from within the session, or on an individual basis. It is an all or nothing feature.
- Requires concentration.
- Is not threaded, but chronological.

Tips for using Chat

- Paste URLs in chats and they convert automatically to links.
- Keep a specific purpose in mind when opening a chat, and close it as soon as you can once this goal has been achieved.
- “Leave” chats rather than closing the window (which will result in you being prompted to rejoin if others continue chatting).
- “Chatters” develop their own acronyms and shortcuts (c u l8r for “See you later,” for example). Keep a list of commonly used and useful ones and send them out to participants before joining the session.
- Facilitators should try to only use the group chat area; participating in private chats with class members will take a lot of time.
- Yes/No questions are good.
- Split long responses, and press Enter between the different parts so that others can see sentences/arguments develop.
- Do not leave your audience waiting for a long time. They may be distracted.

5.2 Other virtual classroom tools

In this section we discuss live virtual classroom tools that simulate activities in a traditional classroom.

5.2.1 Whiteboard

The whiteboard represents the biggest part of the screen in the live virtual classroom and is used to display additional materials. Participants can write on the whiteboard during the session, and the facilitator can display materials that are prepared in advance. Participants can choose to maximize the whiteboard screen. The whiteboard toolset includes:

- Pointers
- Text tools
- Drawing tools
- Markers

The whiteboard's toolbar allows you to control the appearance and elements for a whiteboard session, as shown in Figure 5-6.

Figure 5-6 The whiteboard toolbar

Not all materials can be uploaded automatically for use on the whiteboard. You can use the Sametime Print Capture tool for document types that are not supported. This converts files into an .fst file which can then be uploaded.

Benefits

- Reuse of existing materials.
- Less bandwidth compared to application sharing.
- The teacher can prepare presentation materials in advance.
- It can show a variety of digital files.
- Enables highlighting and adding text to the materials during the session.

Limitations

- Handwriting and drawings limited without graphics tablet.
- Whiteboard sessions cannot be saved separately.
- Whiteboard area is fixed in size.
- Cannot zoom into whiteboard.
- Only one whiteboard area; cannot have multiple boards.
- Unable to group objects on the whiteboard.
- Cannot paste text or other objects onto the whiteboard.
- Unable to edit text after leaving the text box.
- Producer or facilitator has to delegate control over the whiteboard. You cannot request rights to edit as you would request the microphone.
- Limited by screen settings of each participant.
- Whiteboard content splits up multiple objects.

Tips for using the whiteboard

- Follow the 7x7 rule, no more than 7 lines of text per screen, or 7 words per line.

- Use simple graphics and charts.
- Control total whiteboard file size, limit its use to essential files.
- Control the screens shown to about 1 slide every 3 minutes.

But the whiteboard shouldn't be a static presentation of content. For example, don't just pull up a slide and speak over it. Use specific whiteboard tools to direct the participants' attention or add to the content of the screen. Here are a few whiteboard interactions you can include:

- Use the pointer or arrow tools to draw attention to a bullet point or portion of a graphic.
- Draw in bar or line charts as you discuss them.
- Add labels to pie charts you discuss.
- Lead into a whiteboard activity with a poll. Enter data from the poll onto a table in the whiteboard to compare against other statistics.
- Draw an item once, and move it around the whiteboard to draw attention to other locations.
- Select an item on the whiteboard and cycle through colors for a neon lighting affect.
- Conduct a brainstorming activity where everyone can contribute to a topic.

For more information, see "Effective use of the whiteboard" on page 85.

5.2.2 Screen sharing

Screen sharing is a powerful learning tool for demonstrating software procedures. It allows all class participants to see an application that is opened on any given participant's PC. Everyone can see the shared application or screen as if it were running on their own PC. Control of the application can also be handed over, so others can use the application from their own machine, and to troubleshoot participant difficulties in performing activities in applications on their own PCs.

There are three basic types of screen sharing (or application sharing):

- Share the entire screen.

  Sharing the entire screen works best when you plan to switch between multiple applications, or if you need to show something at the desktop level. Sharing the entire screen is the most bandwidth-intensive type of screen sharing, so performance may be slower than other screen sharing methods. Be extremely careful with scripting permissions because participants with control over sharing the entire screen have the same access and rights to the screen sharer's PC as the screen sharer does.

- Share a resizable frame.

This method is best when you need to limit sharer access to features or information in the application that you are sharing. If you flip between applications, whatever application is within the frame continues to be shared. You can also share the desktop using this method. Keeping the frame small will result in the fastest screen-sharing performance.

- Share a program.

  This method is best for sharing a specific application, such as Macromedia Dreamweaver or a Web browser window. Pop-up and spawned windows will appear in the shared area, but new applications that are launched by the shared application will not appear. Also, when the screen sharer leaves the shared application without turning off screen sharing, the shared space turns gray for all meeting participants.

Benefits

- No need to distribute software to all participants to see and use an application.
- Teacher can easily switch to a local application during an live virtual classroom session.
- Provides an authentic experience of using an application.
- Permissions can be managed centrally by the producer.
- Enables participants to work collaboratively on a document in real time.

Limitations

- Requires reasonable bandwidth.
- Security should be carefully considered when allowing other participants to control your PC.
- Requires good planning (scenario) by the producer and facilitator.

Tips for working with application sharing

- Prepare a detailed scenario in advance.
- Select the appropriate screen-sharing method to maximize performance of the LVC and focus participant attention.
- Test your screen sharing script to verify that everything will come through accurately.

Note that if you allow participants to control screen sharing in this mode, they will have access to all of the application features that the screen sharer has. If you need to insure against participants saving documents or using other application

features, share a frame instead and limit what menus and buttons the participants can access by appropriately sizing the frame.

No matter which screen-sharing method you select, there are several things you should consider:

- Schedule screen sharing at a late stage in your session. The arrival of late-comers to a meeting during screen sharing can slow performance.
- Set the screen sharer's color palette to the lowest number of colors necessary. This will improve the speed of the screen sharing.
- Set the screen sharer's mouse pointer to a large size to make it easier for participants to follow its movement.
- The screen sharer should arrange to be at the best PC available to them—the performance of the screen sharer's PC will affect everyone's experience of the screen sharing.
- Avoid using short cuts and smart keys; learners find it easier to follow you through a series of pull-down menus.
- Have the screen sharer instruct participants where to look.
- Have the screen sharer close all unnecessary windows and applications.
- Include pause points during screen sharing to minimize the effect of latency. Latency describes the effect of screens repainting at different speeds for different users.

For more information, see 7.3, "Stage 3: Development" on page 94.

5.2.3 Polling

Polling is a very useful tool for gathering feedback from all participants in a quick and easy way:

- The facilitator or producer can send out multiple-choice questions to students during the live virtual classroom session.
- These questions can be created in advance or during the session, as shown in Figure 5-7.
- A variety of question types is available.
- The student responses are automatically corrected by the system and displayed to the teacher.

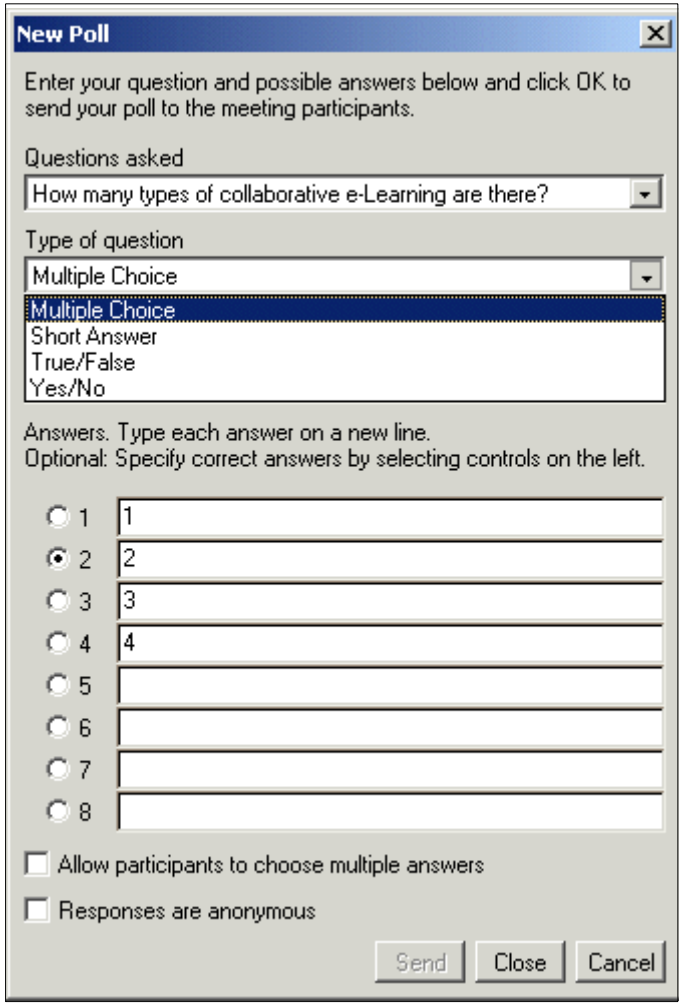


Figure 5-7 Creating a poll

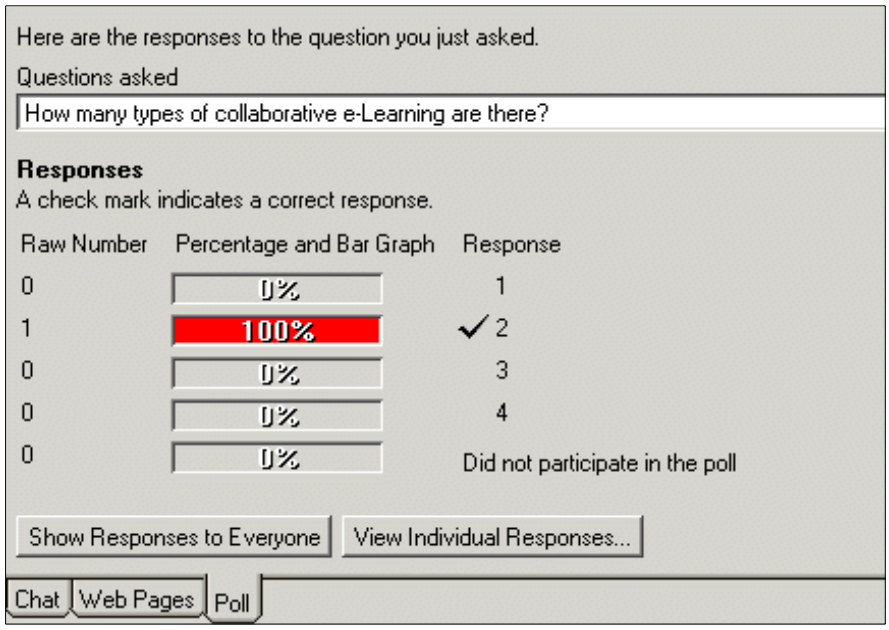


Figure 5-8 The system automatically shows responses

Benefits

- Quickly determine students' knowledge levels.
- Responses can be checked by the system and collated. See Figure 5-8.
- Questions can be prepared in advance.
- Multiple choice questions allow for quick response.
- Questions can be reused.

Limitations

- It takes time to define good questions.
- It takes time to create questions on the fly.
- Answers are not saved after closing the session.

Tips for using polling

- Prepare questions in advance.
- Choose the best moment to send the questions.
- Ask a poll question related to content that will be covered next in the session. Share the poll results with the class and use it as a lead-in to the next section.

- Ask a poll question on material that you have just covered, as a spot check. Use teaching assistants and breakout sessions to provide individualized follow-up with those having difficulty.
- Use a poll to have participants rate Web sites they have explored, or to judge the value of a particular resource.
- Use a series of poll questions (Do you own a cat?, Do you work overtime? etc.) to create a quick demographic of your audience. This can be made into a fun ice-breaker activity.
- For yes/no type of questions, use hand raising instead of polling.
- Use anonymous polling to allow participants to vote.
- Let participants know, before sending a poll question, that the facilitator will be able to see their individual responses when not using an anonymous poll.

For more information, see “Effective use of Polling” on page 89.

5.2.4 Web tour

The producer or facilitator can “push” Web pages out to class participants. This results in a new browser window opening on each person’s machine. Unlike whiteboarding or application sharing, class participants then independently view the Web page and navigate through it.

With Web pages, remember that when you push an additional Web page, it will replace the Web page being viewed; it does not create an additional window. Also, include instructions to close the Web page window when you want participants to return to the main virtual classroom window.

Web pages are not well-suited for instructing participants on Web site navigation. This is because the facilitator does not control what links a participant clicks in the Web pages window. Therefore, there is no guarantee that participants will click the appropriate link, or that they will know what you are referring to on the screen. Screen sharing is much better suited for this type of activity. You can follow a screen-sharing activity with a Web-page push to allow participants an opportunity to practice navigating on their own.

Benefits

- Allows direct access to Web resources
- Active interaction with information

Limitations

- Learners cannot use this tool to push pages to one another. Instead they can use the chat window to send the URLs.

- Not suitable for structured group “tours” because navigation is independent.

Tips for using Web tours

- Always set a time limit.
- Ask participants to paste URLs they find in the group chat area.
- Send participants to a FAQ or help site they can use on the job, and have them bookmark the URL.
- Send participants to one Web site to explore. Send them to another Web site 5 minutes later. Have them contrast the two sites (for usability, content, marketing, and so forth.)
- Send participants to a Web application to perform a lab activity.
- Send participants to another virtual class entry in the catalog and have them register.

For more information, see “Effective use of Web pages” on page 89.

5.2.5 Breakout sessions

In a traditional classroom, a teacher often divides the learners into groups to discuss a specific topic or to work on a group assignment. This concept can be used within an live virtual classroom session as well. At any moment, a breakout session can be started. After learners have entered the breakout session, it is as if they are in a different room. The facilitator or producer can add learners to breakout rooms manually or automatically. Or they can allow the learners to choose a room themselves. The facilitator or producer has the opportunity to walk through the various breakout sessions to see how the learners are doing.

A breakout session can be difficult for new users who aren’t particularly PC-savvy, since it involves managing multiple windows and working closely with all of the session tools. It is a good idea to include a teaching assistant in each breakout session. Alternatively, you can designate an experienced participant to be the group facilitator. Be sure to instruct participants not to close the main session window, and you may want to briefly explain how to switch back and forth. Provide specific instructions for how long people have in their breakout sessions, and when they are to close them.

Benefits

- Allows the facilitator to break the class into smaller groups.
- Allows learners to discuss multiple topics at the same time, during the same live virtual classroom session.

Limitations

- Needs good organizational skills.
- Is not effective when participants communicate using a separate telephone conference system.

Tips for using breakout sessions

- Carefully plan the use of breakout sessions.
- Experiment with individual learners in breakout sessions (each student working alone for some time while the teacher virtually walks around).
- Pair inexperienced participants with experienced ones, and use the breakout session for one-on-one mentoring.
- Have a competition among teams to come up with the solution to a problem or a puzzle. The first team to report back to the facilitator with the correct answer wins.
- If you have participant groups attending jointly from conference rooms at remote sites, create breakout rooms as site workspaces. They can be used in parallel to the main session to take notes on the whiteboard, or for group teamwork.
- Break participants into “chat huddles” (breakout sessions that only use the chat feature) to quickly confer and report back a team response to a question or issue raised in the session.
- Use breakout sessions to create “study groups” that exist over the course of the entire main presentation.
- Use breakout sessions at the end of the main session for review. Have participants come up with a list of the top ten things they learned in the session, return to the main session, and share three with the whole group.

For more information, see “Effective use of breakout sessions” on page 90.

5.2.6 Outlines

The outline function allows the teacher to define the agenda of the live virtual classroom session. The outline is usually defined before the start of the meeting. However, the facilitator or producer can modify the outline during the session. The outline can either consist of static text lines or links to activities in the live virtual classroom. You can, for example, add a line that launches a presentation on the whiteboard. While creating the outline you can add time estimates for each part of the outline.

Benefits

- Allows a more structured approach
- Can be defined before the start of the session
- Shows the students a clear overview of the structure of the session
- Guides the teacher
- Provides an easy way to send learners to areas in the live virtual classroom
- Makes it easier to stay within the time plan

Limitations

- The outline has to be created online in the live virtual classroom environment.
- The session may become too formal.

Tips for using outlines

- Try to use multiple live virtual classroom tools during the session.
- Always discuss the outline at the start of a session (ask if items are missing).
- Minimize the outline screen while working in other areas of the live virtual classroom.

5.2.7 Hand raising

Hand raising in the live virtual classroom is simply a button that a participant can push, resulting in an icon representing a hand appearing next to their name in the participants list. It can be used to indicate a positive response to a question, or as an indication that a participant would like attention of some sort.

The order in which participants responded can be viewed by clicking the header above the hand-raise column on the participant list; this sorts names in the order in which their hands were raised. The number of raised hands is tallied for the facilitator in the margin below the participant list. The facilitator can erase this tally and lower all raised hands at any point.

Benefits

- Not distracting
- Simple to use
- Quick

Limitations

- Difficult to monitor with many students.

- Notification is by icon: there is no audible notification.

Tips for using hand raising

- If you use hand raising to seek a response, ask simple questions such as: “Raise your hand if you did *not* understand that”; rather than: “OK, who understood that?”
- Even though it is fast, allow a little time for responses.
- Make sure participants lower their hands when they no longer seek attention. If they don’t, the producer or facilitator can do this for them.

5.2.8 Recording sessions

live virtual classroom sessions can be recorded. The sessions can then be replayed as if they are videos. Students or instructors can replay a session at any time after the session has finished. Students can access the recorded session by opening the initial link to the live virtual classroom session. The recorded session includes audio, video, text in the public chat area, and activities on the whiteboard (including application sharing). The activities in the breakout sessions are not recorded.

A recorded live virtual classroom session can be edited to add graphics or replace audio.

Benefits

- If people cannot attend a meeting, they can at least view the recorded session.
- Can be used as an example for learners and teachers.
- Can be used to review teacher performance.
- Learners can review the session multiple times.
- Recorded sessions might be used as reference material in the future.

Limitations

- No interaction.
- Learners may decide not to attend the meeting if they know that it will be recorded.
- File sizes of recorded live virtual classroom sessions can grow big.
- In LS 5, a session must be replayed using LVC. It cannot be replayed on a desktop workstation using a standalone media player. Future releases may remove this limitation.

- Activities in breakout sessions cannot be recorded.

Tips for recording live virtual classroom sessions

- Regularly check disk space if sessions are often recorded.

Part 3

Making the most of live virtual classroom

In this part we discuss how to make good use of the tools provided in a live virtual classroom. We supply some “best practices” hints and tips from our experience.

6

Roles and responsibilities

In this chapter, we define some of the roles involved in developing and delivering live virtual classroom sessions. We start by examining traditional learning environments. Then we map areas of responsibility from those environments to the LearningSpace-Virtual Classroom.

6.1 Traditional roles

Most of us are familiar with many different types of learning environments. For example, in high school, we attend classes with a teacher, sessions in the laboratory with technicians and special equipment, sports lessons, and so forth. In a university, we experience new environments such as lectures and tutorials, and become involved with new activities such as research. In the workplace, we experience still other types of learning environments, such as on the job experience, corporate induction sessions, skills-related training sessions with a trainer, mentoring, and so forth.

Many people may be involved with a regular “class,” including:

- Learners
- Teachers
  - Trainers
  - Lecturers
  - Tutors
  - Lab technicians
  - Mentors
- Developers
  - Curriculum planners
  - Instructional designers
  - Authors
- Support personnel
  - Facilities support (porters, security guards, janitors)
  - Resources support (librarians, information technology staff)
- Administrators
  - Resource planners
  - Course administrators
  - Financial administrators

The roles these people perform in the traditional classroom environment all exist in some form in the live virtual classroom.

6.2 Roles in the live virtual classroom

In this section we discuss the roles of those that may be involved in the live virtual classroom. Each role doesn’t necessarily equate to a separate *person;* one

person in reality often fulfills several of the roles described here, depending on the scale of the organization and the level and type of available resources.

This list has suggestions for best practices and is meant as a starting point for those discussing new roles when implementing the live virtual classroom.

6.2.1 Learners

The learner's role is an active one. Good learners know what their learning objectives are (Why am I learning? What do I want to learn? How will I best learn this?). They use the live virtual classroom as a tool to seek answers to these questions. They are also willing to share resources, knowledge, and question; without competing against other learners. This requires a respect for the diversity of beliefs and attitudes.

The learner needs to prepare adequately in advance of sessions. This preparation includes:

- Familiarization with the topics to be covered (reading, research, taking part in and using asynchronous courseware, and so forth)
- Learning how to use the environment and any applications to be used during application sharing
- Good time and personal management to leave sessions free of interruptions

During the session, the learner has to:

- Take part in exercises that involve working with other learners, materials, and facilitators
- Ask questions
- Interpret, analyze, and evaluate information
- Give feedback to facilitators and other learners

6.2.2 Teachers

There are number of roles that are called *teachers*. These include facilitators, producers, subject matter experts, and trainers.

Facilitator

The facilitator leads live virtual classroom sessions and helps the learners in a group to realize their learning objectives. The facilitator needs a thorough understanding of the live virtual classroom and its tools, as well as excellent interpersonal, communication, and organizational skills. The facilitator is usually

knowledgeable within the subject area he or she teaches, but this isn't necessarily the case. A facilitator guides learners by:

- Welcoming learners to the session.
- Establishing an agenda by presenting the outline and consulting with participants.
- Initiating activity, setting up groups, inviting participation, and so forth.
- Encouraging group self-management by creating a sense of ownership of the LVC in the learners, and encouraging learners to share and talk with one another. The facilitator might also share responsibility with the learners for running and managing the session.
- Assessing the level of understanding of topics and subjects, both in individuals and in the group as a whole. This is an ongoing process used to track the progress of the learners and to determine what to concentrate on next.
- Guiding and maintaining activity by finding patterns and making connections in topics and discussions, and by encouraging a real meeting of minds.
- Asking the questions that enable learners to discover answers.
- Closing the session and outlining the outcomes.

Figure 6-1 shows the skills that a facilitator needs for success in an e-Learning situation.

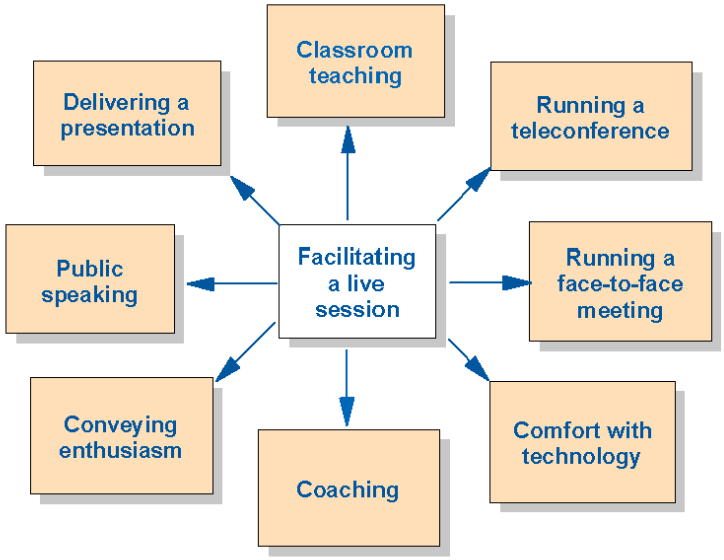


Figure 6-1 Facilitator skills

Producer

The producer handles the practical and technical aspects of running the session. These include:

- Redirecting users with technical issues to the help desk by using private chat
- Handling user permissions (granting and revoking edit rights to the whiteboard, for example)
- Pushing Web pages
- Sending polling questions and assessments
- Monitoring for raised hands while the facilitator is screen sharing
- Passing the microphone (in hand-off audio mode)
- Any other technical issues

Subject matter expert (SME)

A subject matter expert might be invited to participate in a session as a guest speaker. Although the facilitator leads the session, the subject matter expert is the source of expertise on one or more of the session topics. A subject matter expert might prepare a presentation, be interviewed by the facilitator, or participate in question and answer sessions with the entire group.

live virtual classroom trainer

Unlike traditional classroom environments, most people have never experienced an live virtual classroom. An live virtual classroom session will only be effective if all participants are familiar with the environment and its tools. The role of the live virtual classroom trainer is to familiarize all new users of the live virtual classroom with the environment by:

- Running classroom-based orientation sessions
- Producing printed and online materials
- Running introductory live virtual classroom sessions

6.2.3 Developers

The roles for developing a class include curriculum planners, instructional designers, and chief learning officers.

Curriculum planner

The curriculum planner puts together training programs and decides upon the type of delivery, meaning the blend of different learning and teaching types. The curriculum planner needs an excellent overview of the various types of training and e-Learning and their characteristics and relative merits. The curriculum planner determines the composition of learning programs and constructs the ultimate blended solution.

Instructional designer

The instructional designer is responsible for planning the outline of live virtual classroom sessions and creating the materials to be used. This includes:

- Definition of session objectives
- Presentation materials
- Question sets
- Links to reference materials and sites
- Scripts/scenarios for facilitators to use

Chief learning officer

Just as the chief financial officer is responsible for a company's fiscal resources, a role such as chief learning officer (CLO) is required to manage and grow a learning organization's intellectual or knowledge capital. This is still an emerging role in most companies. Other titles for the same role include:

- Chief knowledge officer
- Director of knowledge management

- Director of leadership development

The CLO doesn't necessarily belong within any of the traditional units of an organization, such as human resources. Instead, the role is one of steering the focus of the organization as a whole from being *reactive* to the environment (coping), to being *creative* (producing). The CLO's main tasks can be outlined as:

- Turning the collective intelligence of the organization into a critical asset.
- Gaining commitment to the integration of learning in all business processes.
- Changing perceptions of learning into an active, creative process; empowering people to learn and not just to be trained.
- Unlocking information latent in the organization and turning it into knowledge.

6.2.4 Support

Support must be provided for questions regarding use of the virtual classroom and its systems.

User supporter

The user supporter is responsible for assisting users with all support issues regarding the live virtual classroom. All technical assistance should take place outside of the online classroom so as not to disrupt the class. If necessary, the help desk forwards queries to others in the organization.

Systems supporters

These roles are concerned with maintaining and troubleshooting the technical infrastructure serving the live virtual classroom. These include:

- Networks
- Servers
- Security
- Access and directories

6.2.5 Course administrators

A number of administrative tasks need to be addressed:

- Scheduling sessions
- Selecting and booking facilitators and SMEs
- Managing resources, such as conference rooms, audio visual equipment, PCs, and so forth
- Managing student registration and tuition

- Managing live virtual classroom session feedback

7

Instructional design

In this chapter we show how a live virtual classroom can be effectively used as a training tool following the ADDIE model. ADDIE stands for Analysis, Design, Development, Implementation, and Evaluation—the five major stages in this training model.

We go through each of these stages and highlight important tasks for creating effective training using an LVC. We review best practices throughout, and provide you with reusable aids for developing training in your organization. To read an example of this process in action, see Appendix E, “An LVC in action: A training scenario” on page 135 for a fictional scenario that goes through this process for a company that is using training to improve use of its sales automation tool.

A virtual classroom does not require that you utilize one instructional design approach over another. However, to help you better understand how to deliver formal training using an LVC, this chapter focuses on a popular ISD model to illustrate how using the LVC would fit into an ISD process.

If you are not an instructional designer, this chapter has a project plan you can follow to create effective training. If you are an instructional designer, remember that the ADDIE model is used here to provide context—you can adapt these tasks to your preferred ISD model.

7.1 Stage 1: Analysis

The A in the ADDIE model stands for *Analysis*. In this section we describe a structured way to assess your organization's training requirements and the environment in which training will take place.

7.1.1 Identify the training need

Training in an organization is intended to enable the workforce to execute tasks required to meet the organization's strategic objectives. The first step in the analysis stage is determining what the training need is. This sounds obvious, but the challenge is verifying that training can solve the business problem.

For example, a key objective for a mail-order company may be to improve customer satisfaction with their ordering process to increase the number of repeat buyers. To do this, the company initiates a training program for its customer service representatives.

7.1.2 Identify constraints

Every project has to be delivered within the context of its own particular constraints. Some of the constraints that will affect delivering virtual classes are: the budget, the available personnel for delivering the training, and the time frame available to produce and deliver the training.

The budget can impact your training design in many ways. Specific cost considerations are:

- Guest lecturers
- Print materials (production and shipping)
- Headsets with microphones
- Desktop video cameras
- Audio bridges, conference calls (number and length)
- Completion rewards
- Internal costs (resource time, other charge-back structures)

The good news is most of the items listed above are optional enhancements to an effective virtual class. Even if you are deploying headsets and video cameras to each participant's desktop for the first time, the price of these items has dropped so significantly that you can easily equip your participants for a minimal investment per user.

So with a very constrained budget, you can still deliver training using an LVC. Travel expenses for facilitators and participants are completely averted. This is

one of the factors that adds to the compelling business case for delivering training with the LVC.

The available human resources to support your training initiative should be identified. Identify who will be performing each of the roles described in Chapter 6, “Roles and responsibilities” on page 69. It is likely that some people will be performing multiple roles, but you should still link each role with a name, in order to clearly delineate responsibilities.

Finally, identify the timeframe available to develop this training. If you are dealing with a new product rollout that is occurring at the end of the week, you are probably not going to have time to put together a complex curriculum. However, using the LVC, delivering training under extremely tight time pressures is still possible. This is another attractive feature of training with the LVC—the ability to create and deliver training to a large, dispersed audience very quickly.

7.1.3 Profile audience

Profile your audience. Some key aspects to identify about your audience, along with the implications for training, are as follows:

Size
The size of the audience can impact the type of virtual class you hold (moderated or broadcast), as well as how many virtual classes you deliver.

Locations
If you have groups of people at several locations, you can have them attend as a group in a conference room. You can introduce contests by location, or publish performance by location—utilizing the local peer motivation to encourage high levels of participation and performance.

Experience and skill levels related to the training content
If you have people with a wide range of skill levels, you can create different sessions geared towards those levels (beginner, intermediate, advanced). This will eliminate wasted time for advanced audience members, as well as provide a comfortable training environment for novices.

If you don’t know the skill levels of your audience, consider using the LVC to deliver pre-tests. Based on the user results of the pre-test, direct each learner to the course they should attend.

If you have a small population of advanced users, consider using this population as mentors. Mentors can be effective in break-out sessions during the virtual class, as well as support resources for learners after the classes have been completed.

First-time users of the LVC will need additional time before the virtual class to configure and test their workstations prior to the virtual class. In addition, they will need more assistance with the product interface at the beginning of a session. Advanced activities, such as using breakout sessions or having students perform screen sharing, are best left to audiences that have some experience with the LVC environment.

Motivation

Learner motivation affects everything, from whether they will even attend a session to how engaged they are in a session. Provide a clear message to your attendees on why they should attend the training: ”what’s in it for them.” To increase motivation, consider using well-known SMEs as guest speakers, conducting a publicity campaign, introducing competition into the training, or providing rewards or recognition based on successful completion.

Technical infrastructure

There are several technical issues that need to be checked off prior to launching your session. Verify that your end-users have access to PCs that meet the minimum software and hardware requirements to participate in a session. If your end-users’ PCs do not meet the minimum requirements, you will need to tap resources to upgrade the PCs, or determine if there are other PCs the participants can use.

Check what connection to the Internet is available to participants (modem, broadband, other). Your end-user connection speed will influence the use of audio and video in a session, the type of session, and the distribution of LVC software.

Finally, determine if there is a firewall or proxy between your end-user locations and your LVC servers. If so, the firewalls or proxies may need to be configured to allow users at those locations to attend your sessions.

See Appendix D, “Analysis worksheet” on page 133 for a template you can use during the analysis stage.

7.2 Stage 2: Design

The first D in ADDIE stands for design. Now that you have set the stage for your training initiative with the information you gathered in the analysis stage, it is time to roll up your sleeves and design your training program. The outcome of the design phase should be an effective curriculum and script design that will achieve the desired learning outcomes when implemented.

7.2.1 Identify the learning outcomes

To begin, translate your training need into a set of outcomes that a participant in the training is expected to achieve by successfully completing the training. This is the familiar list of “at the end of this course, the learner will be able to” items.

Next, break down the outcomes for the course into a more detailed set of enabling outcomes and learning objectives. Group these into small sets of related outcomes and objectives that can be treated as lessons. These will provide the foundation for the curriculum and virtual classes you design.

7.2.2 Collect available resources

Now that you have mapped out what you need to enable your participants to do, collect the resources that are already available in your organization. Examples of relevant resources are:

- Reference materials (print, Web-based, other)
- Job aids
- Self-paced training
- Prior training content
- SMEs (internal, external)
- Relevant participant co-workers

While you are collecting resources, look for items that the learners are likely to use in their work setting. Incorporate these items into your curriculum as much as possible to give context to the training, enabling better on-the-job recall. In addition, you enable the learners to independently find answers to questions they have after the training sessions have been completed.

7.2.3 Create a blended curriculum

Get out your blender! With your learning outcomes and available resources documented, create a curriculum map. Do this by aligning resources and delivery formats to meet the learning outcomes. Some delivery formats are listed in Table 7-1.

Table 7-1 Delivery formats

Online	Offline
Self-paced courseware/simulations Live virtual classrooms Discussion boards	Classroom training Print or electronic documentation Video tapes e-mail CD-ROM Mentoring On-the-job activities

Select the format based on what is best suited for meeting the desired outcomes. See Chapter 5, “Tools of the IBM Lotus LearningSpace - Virtual Classroom” on page 47 for an examination of different delivery formats and their advantages and disadvantages. You do not need to use every format, and you can use one format for multiple events. For example, the curriculum might utilize some electronic documentation, several virtual classes, and a few on-the-job activities.

Maximize the value of times when facilitators, SMEs, and participants will directly interact with each other, such as moderated sessions in an LVC, a classroom, or mentoring situation. Use broadcast sessions and self-study formats to facilitate information transfer, and require pre-work to be completed prior to personal interactions. Utilize personal interaction for question and answer sessions, in-depth analysis, concept application, demonstration, and practice.

Include activities where learners have the opportunity to practice or apply the concepts directly on the job. Follow these activities with chances to interact with facilitators or SMEs. Learners develop questions and insightful tips they can share once they have had a chance to apply what they have learned in the context of their job. Just think of all the times you thought you understood a concept explained in a class, only to flounder when trying to apply it after the class.

Next, indicate what type of evaluations will be performed, and when the evaluations will occur. The LVC provides you with a powerful tool to perform many types of evaluations before, during, and after a session has been completed. This is covered in detail later in this chapter.

7.2.4 Selecting a session type

The first decision you need to make is what type of session you will use: broadcast or moderated.

A *broadcast* session is meant to push information, similar to a television broadcast. In a broadcast session, a set of moderators can use the whiteboard and screen sharing to deliver information to a large audience. However, the

moderators cannot interact with the audience, and the audience members cannot interact with each other.

Broadcast sessions are a cost-effective way to deliver information to a large audience, perhaps as many as 200 participants. (Verify with your system administrator how many concurrent participants your LVC infrastructure has been architected to support.) Effective scenarios for using broadcast sessions include:

- A panel discussion among SMEs
- A personalized message from a senior executive or industry expert
- Demonstration of a new software or Web application
- Information on a new product
- Information on a new company benefit or procedure

Broadcast sessions are not appropriate when you need to:

- Immediately field questions from the audience
- Ask your learners questions
- Use the polling, assessment, or Web pages features
- Conduct breakout sessions
- See who is attending the session
- Let your learners participate in screen sharing
- Address a small audience

If your training requires a mix of things, some suited for a broadcast session and some not, consider using both broadcast and moderated sessions. Our sample case, found in Appendix E, “An LVC in action: A training scenario” on page 135, illustrates how this could be done.

A *moderated* session is an interactive session where you can utilize the full range of meeting tools described in Chapter 5, “Tools of the IBM Lotus LearningSpace - Virtual Classroom” on page 47. This type of session can be an engaging collaborative learning experience when well designed and executed. A moderated session can be designed to achieve just about any learning outcome.

But a moderated session is not appropriate when you:

- Have a very large audience that needs information very quickly
- Need to demonstrate a physical procedure
- Need to block communication among participants

Typically, a single facilitator and producer can conduct an effective moderated session with up to 40 participants. However, you should scale this number back to between 10 and 20 participants for new facilitators. Larger interactive sessions can be conducted by utilizing multiple facilitators and leveraging break-out sessions from your main session, but this requires experienced facilitators and students to be effective.

7.2.5 Selecting tools

Choosing an A/V method

Now that you have determined what type of session you will have, decide whether—and how—you will deliver audio and video to your participants. There are five common methods to choose from:

- No audio/No video
- IP audio/No video
- IP audio/IP video
- Audio bridge/No video
- Audio bridge/IP video

No audio/No video

With no audio or video, you will have to rely on chat and private text messaging for communication in your session. You need to set very explicit ground rules for chat communication to be effective. Many people struggle with chat when there are multiple discussion threads occurring at the same time. In addition, participants who are slow typists will be challenged to contribute anything to the session. Still, this may be the best option if you have firewall, hardware, or bandwidth constraints that make IP audio unfeasible, and you do not have access to an audio bridge.

IP audio/No video

IP audio is an inexpensive way to add audio to your sessions. It requires each participant to have a microphone at their PC, preferably a boom microphone attached to a headset. IP audio is best delivered to users with connection speeds greater than 28.8k. When choosing IP audio, remember that your audio quality can be affected by the traffic load on the network and the Internet. Also, you may wish to use “request” audio, rather than automatic audio switching, to facilitate an orderly discussion. IP audio may require modifications to firewalls or proxies that exist between participants and your LVC servers.

IP audio/IP video

This option provides an inexpensive way to include audio and video in a session, but also imposes the highest bandwidth requirements. Adding video to a meeting has several advantages. It personalizes the meeting, breaking down distance barriers and encouraging interaction. Video also allows you to show physical objects under discussion or demonstrate certain physical actions (limited by what can be captured in a desktop video camera). It also adds communication through body language and facial expressions, and offers an additional medium for humor.

Video is most effective when all participants have a high-speed connection to the Internet. Even with a high-speed connection, you should not expect

television-quality video. Video also may require modifications to firewalls or proxies that exist between participants and your LVC servers. Note that some participants may be apprehensive about having their picture broadcast in a session, and this may affect their level of participation in the class.

Audio bridge/No video

This is a great option when you have participants attending via low-speed connections, or you do not have the necessary hardware for IP audio, or you need to guarantee phone-quality audio during your session. You can also "tunnel" your entire session, which means that you will avoid any potential interference by firewalls or proxies (speak to your LVC administrator to determine if your system is configured to tunnel). There is the added advantage that participants are familiar with phone technology. However, an audio bridge can add costs to your training project. Plus, the conversation over the audio bridge is not recorded as part of the session, and so cannot be played back or edited with the session recording.

Audio bridge/IP video

This option is desirable if you do not have the audio hardware available at all locations, but the facilitator does have a video camera. You also gain the quality of service (QOS) you can count on from an audio bridge. The disadvantages for this option are the additional cost of the audio bridge, higher bandwidth requirements, and potential firewall and proxy issues. Additionally, your video will probably resemble a poorly dubbed movie since the audio via the audio bridge will reach participants faster than the video.

Effective use of the whiteboard

The whiteboard is typically the primary tool for displaying information to participants. In the traditional classroom, participants focus on the presenter. This is one of the reasons why proper attire is so important to classroom instructors. In the LVC, participants focus on the shared space. This makes good visual presentation on the whiteboard even more important in the LVC than in the traditional classroom.

Be sure to have the person who develops the whiteboard documents review the tips provided in 7.3, "Stage 3: Development" on page 94. But while scripting, keep the following guidelines in mind:

- Follow the 7x7 rule. Do not use more than 7 lines of text per screen, and no more than 7 words per line. This will keep your screens from becoming cluttered and make it easier for participants to read them.
- Shift the contents of your visual toward the upper left of the page to avoid having important content hidden by the participant list or chat tool. To ensure that students can see the complete whiteboard, have them use the "make shared area full screen" button. You will need to remind them to "undo full

screen" when they need to raise their hand or use the chat space. Using the "fit shared area to window" button will alter the appearance of your whiteboard content and may not be appropriate.

- Use simple graphics and charts. Images are crucial for visual learners, and they keep the screen interesting. Be sure to include images where they can help explain the points discussed. But keep your images simple; detailed photos or complex images are overhead on your bandwidth.
- Control total whiteboard file size. The total size of all of the files on the whiteboard can impact the performance of your session, so limit the whiteboard to files that are essential to the session.
- Control the screens shown per minute. Although you want to keep the whiteboard space active, allow a reasonable amount of time for each screen. In a standard classroom, the rule of thumb is no more than one slide every three minutes. So in a script for a 90-minute session, you should have no more than 30 different screens.

But the whiteboard should not be a static presentation of content. For example, don't just pull up a slide and speak over it. Use specific whiteboard tools to direct the participants' attention or add to the content of the screen.

Here are a few whiteboard interactions you can include in your script:

- Use the pointer or arrow tools to draw attention to a bullet point or portion of a graphic.
- Leave blanks in sentences and fill in with crucial terms, or have participants complete them.
- Leave bar or line charts without the data lines. Draw them in as you discuss them.
- Make pie charts without labels, and add them as you discuss them.
- Lead into a whiteboard activity with a poll. Enter data from the poll in a whiteboard table to compare against other statistics.
- Draw an item once, and move it around the whiteboard to draw attention to other locations.
- Select an item on the whiteboard and cycle through colors for a neon-lights effect.
- Conduct a brainstorming activity where everyone can contribute on a topic.
- Have participants write important words or key steps in a print workbook to facilitate retention.

Be sure to include a step for the producer to grant permissions to participants before they contribute to the whiteboard, and remember to revoke this

permission after the activity has been completed to prevent any unintended changes to the whiteboard. Have the person who develops the whiteboard documents review the tips provided in 7.3, “Stage 3: Development” on page 94. While scripting, refer to 5.2.1, “Whiteboard” on page 54 for additional guidelines.

Effective use of screen sharing

Screen sharing is a powerful learning tool for demonstrating software procedures, explaining Website navigation, and demonstrating operations at the PC desktop level (for example, altering control panel settings). It is also an effective tool for leveraging the power of other applications to add interactivity to your session, such as including a Microsoft Excel sheet with relevant formulas, and having participants enter data.

But beyond content presentation, screen sharing is an excellent means to allow for participant practice, and for troubleshooting participant difficulties performing activities in applications on their local PC. You can also use it for assessment purposes, requiring participants to demonstrate proficiency in a particular application. Include explicit screen sharing steps in your script, just as you do for the whiteboard.

First you need to select what type of screen sharing to use: share a program, share the entire screen, or share a resizable frame. It is important to select the appropriate screen sharing method to maximize performance of the LVC and focus participant attention.

Share a program

This option is best for sharing a specific application, such as Macromedia Dreamweaver or a Web browser window. Pop-up and spawned windows will appear in the shared area, but new applications that are launched by the shared application will not appear. Also, when the screen sharer leaves the shared application without turning off screen sharing, the shared space turns gray for all meeting participants.

Test your screen sharing script to verify that everything will come through accurately. Sometimes what appears to be a window in an application is actually a separate application. For example, creating a new document in Microsoft Word 2000 will actually launch a separate instance of the Microsoft Word application. The new document will not appear via screen sharing if you are sharing the original Microsoft Word 2000 application. In these instances, either share the entire screen or share a frame.

Note that if you allow participants to control screen sharing in this mode, they will have access to all of the application features that the screen sharer has. If you need to insure against participants’ saving documents or using other application

features, share a frame instead and limit what menus and buttons the participant can access by appropriately sizing the frame.

Share the entire screen

This works best when you plan to switch between multiple applications, or you need to show something at the desktop level. Sharing the entire screen is the most bandwidth-intensive type of screen sharing, so performance may be slower than other screen sharing methods. Be extremely careful with scripting permissions, because participants with control over sharing the entire screen have the same access and rights to the screen sharer's PC as the screen sharer does.

Share a resizable frame

This method is best when you need to limit sharer access to features or information in the application that you are sharing. If you flip between applications, whatever application is within the frame continues to be shared. You can also share the desktop using this method. Keeping the frame small will result in the fastest screen sharing performance.

No matter which screen sharing method you select, there are several things you should include in your script:

- Schedule screen sharing at a late point in your session. The arrival of late-comers to a meeting during screen sharing can slow performance.
- Have the screen sharer set their color palette to the lowest number of colors necessary. This will improve the speed of the screen sharing.
- Have the screen sharer set their mouse pointer to a large size to make it easier for participants to follow its movement.
- The screen sharer should arrange to be at the best PC available to them. The performance of the screen sharer's PC will affect everyone's experience of the screen sharing.
- Avoid using shortcuts and smart keys, because learners find it easier to follow you through a series of pull-down menus.
- Have the screen sharer instruct participants where to look. Think of this as a narrative tour. For example, tell the learner to look at the top left for the edit menu and explain when you are clicking, dragging, and pulling down.
- Have the screen sharer close all unnecessary windows and applications. This will improve performance and focus the participants' attention.
- Include pause points during the screen sharing to minimize the effect of latency. Latency describes the effect of screens repainting at different speeds for different users. If the screen sharer action results in large-scale visual changes in the application, such as switching between a Calendar and a list of e-mail messages, include a pause point after the switch.

For more information, see 5.2.2, “Screen sharing” on page 56.

Effective use of Polling

The LVC provides you with a powerful set of features for performing evaluations. This is covered in 7.5, “Stage 5: Evaluation” on page 102. But the polling feature of the LVC can be used for more than evaluations.

Polls are intended to be an informal interaction—the results are not stored for later retrieval. Here are a few types of polling interactions you can including in your script:

- Create a poll question related to content that will be covered next in the session. Share the poll results with the class and use it as a lead-in to the next section.
- Use anonymous polling to allow participants to vote.
- Create a poll question on material that you have just covered, and use it as a spot check. Use teaching assistants and breakout sessions to provide individualized follow-up with those having difficulty.
- Use a poll to have participants rate Web sites they have explored, or to judge the value of a particular resource.
- Use a series of poll questions (Do you own a cat? Do you work overtime?) to create a quick demographic of your audience. This can be made into a fun ice-breaker activity.

It is a good policy to let participants know before sending a poll question that, unless you are using an anonymous poll, the facilitator will be able to see their individual responses.

For more information, see 5.2.3, “Polling” on page 58.

Effective use of Web pages

You can use the Web pages tour feature of an LVC for several different types of learning activities. If you want to include multimedia files in your virtual class (such as Macromedia Flash animations, streaming audio, or video), the only way to do it is to push Web pages that include these files. Multimedia files do not transfer to the whiteboard, the frame rates are usually too fast for screen sharing, and audio does not transfer by screen sharing. You will need to instruct participants how to control the multimedia file once they receive the Web page. The play rate for each participant will likely vary, so ask users to raise their hand when they are done viewing the piece.

Here are a few other Web page activities that you can include in your script:

- Send participants to an FAQ or help site they can use on the job, and have them bookmark the URL.
- Send participants to one Web site to explore. Send them to another Web site a few minutes later. Have them contrast the two sites (for usability, content, marketing, and so forth).
- Send participants to a Web application to perform a lab activity.
- Send participants to another virtual class entry in the catalog and have them register.

With Web pages, remember that when you push an additional Web page, it will replace the Web page in the viewing window—it does not create an additional window. Also include instructions to close the Web pages window when you want participants to return to the main virtual classroom window.

Web pages are not well-suited for instructing participants on Website navigation. This is because the facilitator does not control what links a participant clicks in the Web page window. Therefore, there is no guarantee that participants will click the appropriate link, or that they will know what you are referring to on the screen. Screen sharing is much better suited for this type of activity. You can follow a screen sharing activity with a Web page push to allow participants an opportunity to practice navigating on their own.

For more information on this tool, see 5.2.4, “Web tour” on page 61.

Effective use of breakout sessions

Breakout sessions are an effective tool to include higher levels of interaction and cognitive processing for all users. You may want to include whiteboard files that participants will be able to use as a resource during the breakout session.

Breakout sessions can be difficult for new users who are not particularly PC savvy, since they involve managing multiple windows and working more closely with all of the session tools. It is a good idea to include a teaching assistant in each breakout session. Alternatively, you can designate an experienced participant to be the group facilitator. Be sure to instruct participants not to close the main session window, and you may want to briefly explain how to switch back and forth. Provide specific instructions for how long people have in their breakout sessions, and when they are to close them.

Here are a few types of breakout sessions you can include in your scripts:

- Pair inexperienced participants with experienced ones, and use the breakout session for one-on-one mentoring.

- Have a competition among teams to come up with the solution to a problem or a puzzle. The first team to report back to the facilitator with the correct answer wins.
- If you have participant groups attending jointly from conference rooms at remote sites, create breakout rooms as a site workspace. It can be used in parallel with the main session to take notes on the whiteboard, or for group teamwork.
- Break participants into “chat huddles” (breakout sessions that only use the chat feature) to quickly confer and report back a team response to a question or issue raised in the session.
- Use breakout sessions to create “study groups” that exist over the course of the entire main presentation. Participants in the group can use the space as a constructive way to interact and learn from each other. Questions that get raised or answered in the study group can be shared with the main class at the end of the session.
- Use breakout sessions at the end of the main session for review. Have participants come up with a list of the top ten things they learned in the session, return to the main session, and share several with the whole class.

Be creative with breakout sessions. Many resources exist that explain how to conduct effective small group or team activities as part of a training session. With a little time and creativity, you can convert this to an effective online breakout activity.

For more information, see 5.2.5, “Breakout sessions” on page 62.

7.2.6 Creating a script for a session

After you have determined where and when you will use an LVC, you need to create a script for each session. Time in the LVC is a valuable commodity, and preparing a script is essential to maximizing this time. A good rule of thumb is to limit your session time to 60 to 120 minutes. After that amount of time, learners are likely to tune out or be overloaded.

Pre-session script

It is a good idea to plan a 10 to 15 minute logon period prior to beginning the virtual class. During this time, your participants should log on and call in to the conference call if there is one. This buffer will allow participants to sort out any last minute technical issues they may encounter. Furthermore, participants that enter the session late can affect performance; having this earlier logon period can discourage participants from entering the session after you have begun.

Put conference call information and any preliminary announcements on the whiteboard, not in the chat area. Participants do not see the chat text that occurred prior to their logging on. The opening whiteboard is also a good place to add a snapshot of the facilitator or guest speakers and their location information to allow participants to put a face with the name.

Orient new participants to the virtual classroom

At the beginning of the session, the facilitators should briefly introduce themselves and the producer, and ask all of the participants to raise their virtual hands if they are ready to begin. This engages participants immediately, and enables the facilitator to find participants that may have logged on but stepped away from their PC.

Next, have the producer perform a quick overview of the virtual classroom features. An effective way to do this is to use a blank whiteboard and draw arrows in the general direction of the classroom features you are discussing. You do not need to explain every feature of the classroom, but try to highlight the features participants will be using. If you have an experienced audience, you might skip this orientation.

Establish ground rules

Experienced audience or not, you should allot time to cover ground rules for the session. Although people are used to etiquette in a standard classroom, they are not accustomed to interacting in a virtual classroom.

A few ground rules that you may wish to include are:

- Instructions for when and how to ask questions.
- Instructions for muting telephones if using an audio bridge. (Tell participants *not* to put the call on hold, or your entire class will be hostage to the elevator music.)
- Appropriate use of private messaging and the chat area.
- Instructions for requesting audio (if using request IP audio).
- Using the chat area to “table” questions or items for later discussion.
- Rules for appropriate actions when given access to the whiteboard or control over screen sharing (deleting content, advancing slides, saving changes).
- Plan B: what to do in the event of a server error or individual disconnection.

Beginning the session

With the ground rules for engagement established, you may want to proceed with some official introductions. If this is a new group of students, an ice-breaker activity will help engage everyone and lower barriers to active participation.

Ice-breaker activities include:

- Have a map on the whiteboard, and have participants mark their location when they introduce themselves.
- Mark down on the whiteboard participant learning objectives as they introduce themselves.
- Have participants make quick self-portraits on the whiteboard as they introduce themselves
- Pair participants up in private chats. Spend five minutes having them learn three things about each other. When they return to the main session, have them introduce their partner.

Before continuing on with your presentation, you may wish to direct participants to set their shared area to full screen. This will focus their attention on the white board or screen sharing, and cut down on chat "noise," meaning ancillary chat or private chatting. If you do this, be sure to instruct participants how to undo the full screen so they can access their virtual hand if they have a question.

Scripting basics

Now you can script the interactions for the session. A script is an important guide for both the facilitator and the producer during the session. It indicates on a timeline what tools will be in use, what content is displayed, what actions occur, and what should be said—all in reference to the desired learning outcome. Table 7-2 identifies some of the items that fall into each category.

Table 7-2 Script elements

Tools	Content	Actions	Discussion
Whiteboard Screen sharing Web Pages Poll Breakout	Document and page number Application URL Q & A Number of people, meeting type	Mark-up instructions Movement, by whom Producer pushes URL Producer sends question, shows responses Producer launches groups	Speaker text

As you are scripting your session, focus on accomplishing your learning objectives, not using every tool in the LVC. It is easy to get enthralled with the cool technology and overlook the purpose of your session. Also, keep the session moving and the screen changing to maintain participant interest.

Besides screen changes, vary who is speaking, even if you are just switching between the facilitator and the producer. The best-case scenario is bringing in recognized subject matter experts to present some or all of the content, and, most importantly, to be available to field questions from session participants. It is

hard to overestimate the value that participants place on having access to experts during a session.

Try to include opportunities for your participants to read, hear, see, and do. As studies have shown, when you add each of these elements to your curriculum, the level of retention by your participants increases. For example, you could include the following activities in your script:

- Have participants read important information on the whiteboard, through Web pages, or accompanying materials.
- Have the facilitator talk through an explanation of key points in the session.
- Have the facilitator demonstrate the concepts through activities such as role-playing or through the use of screen sharing.
- Allow your participants to “do” in breakout activities or through opportunities to screen share.

That concludes our suggestions on designing an LVC course. See Appendix B, “Virtual classroom course script worksheet” on page 129 for a sample form you can use to script your session.

7.3 Stage 3: Development

The second D in ADDIE stands for *Development*. With your design complete, it is time to develop the materials that will be used in your training program. Relevant materials include: marketing materials to publicize your course, workbooks, course packs, and LVC components (outlines, assessments, whiteboard documents). Here are a few tips for developing whiteboard materials for your sessions.

7.3.1 General tips for whiteboard files

Before attaching a file to the whiteboard, you must prepare the file. For example, you might create a file in a word processing program. When you attach a file, it is converted to an appropriate format for whiteboard display. The information below tells how to prepare files that display well on the whiteboard.

Limit the pages or slides in your presentation to 100 or less. (You can have multiple presentations of 100 slides, but no single presentation should be more than 100 slides.) To include a file with more than 100 pages, split the file into two or more files that contain fewer than 100 pages and attach the files to the whiteboard sequentially.

Use a simple background for your presentation, such as a solid color or a gradient that fills vertically. White backgrounds work well.

Before the actual class session, conduct a test session with your whiteboard file attached. By previewing the presentation, you ensure that everything is as expected. This is especially important when your presentation includes graphics.

If you use a font that is not on the LVC server, the whiteboard displays the nearest match to that font. Use common fonts (such as Times New Roman or Arial) in your presentation to be sure that it displays as expected.

It is best to use the Print Capture utility for files that are created in a spreadsheet program such as Lotus 1-2-3. Make sure your file is saved in “landscape” orientation. (See 7.3.4, “Converting files with the Print Capture utility” on page 96 for more information.) The Print Capture utility is also a good tool for files with embedded objects that are created in a word processing program such as Lotus WordPro.

Headings in presentations sometimes display as one line of text in the presentation program, but wrap onto a second line when displayed on the whiteboard. To prevent headings from wrapping, use short headings, make sure that the text box you use to create the text is longer than the text itself, and use a common font for your headings.

If you use Lotus Freelance Graphics to create your presentation, see 7.3.5, “Tips for Freelance Graphics presentations” on page 97.

7.3.2 Tips for graphics in whiteboard files

Follow these tips to ensure that the graphics in your whiteboard presentation display well.

Use only high-resolution 8-bit .JPG or .GIF graphics with a maximum of 256 colors in your presentation. The whiteboard conversion process restricts graphics to 256 colors and substitutes the closest color match for any graphics that exceed the restriction. If you are using a prepared presentation template, make sure all graphics in the template are .JPGs or .GIFs.

When you use a highly detailed graphic, such as a screen capture from a program, save it as a .JPG or .GIF at approximately twice the normal size. (If you use a standard size, the graphic will scatter.) For example, if you use a graphics program to take a screen capture, save the screen capture at a ratio of 1:2 or 1:3, rather than 1:1. You can reduce the graphic to its normal size after placing it in your presentation.

Do not remove or copy a graphic from a file in one program and place it into a file in another program. For example, if you create a graphic in a Lotus WordPro file and then paste it into a Freelance Graphics presentation, the graphic does not convert well for whiteboard display. (Pasted graphics might appear on the whiteboard as gray boxes or boxes with colored lines.)

Do not use links to graphics in your presentation; include the graphic itself.

Do not use animation in graphics or presentations. The whiteboard cannot display files such as animated .GIFs or slide animation.

Do not use bitmap graphics (.BMPs) in your presentations. Bitmaps do not always display well on the whiteboard.

7.3.3 File conversion

Before your file can be displayed on the whiteboard, it must be converted to an appropriate format. The LVC automatically converts many file types for whiteboard display. If the LVC cannot convert your file automatically, use the Print Capture utility to convert the file for whiteboard display.

The LVC automatically converts many file types, including:

Ami Pro (.SAM)
Bitmap (.BMP)
CCITT Group 3 Fax (.TIF)
CompuServe Graphics Interchange Format (.GIF)
Computer Graphics Metafile (.CGM)
HTML (.HTM, .HTML)
JPEG (.JPEG, .JPG)
Lotus 1-2-3 (.WK3, .WK4, .123)
Lotus Freelance Graphics (.PRE, .PRZ)
Lotus PIC (.PIC)
Lotus WordPro (.LWP)
Microsoft Excel (.XL*)
Microsoft PowerPoint (.PPT)
Microsoft Word (.DOC)
Paintbrush/DCX (multi-page PCX) (.PCX)
PICT and PICT Graphics (.PCT)
Portable Network Graphics (.PNG)
Revisable Form Text (.RFT)
Rich Text Format (.RTF)
Sametime Print Capture File (.FST)
Sametime Whiteboard File (.SWB)
Tagged Image File Format (.TIFF, .TIF, EPS)
Text file (ASCII) (.TXT, .BAT, .INI)
Windows Metafile Graphic (.WMF)
WordPerfect (.WPD)
WordPerfect Graphics (.WPG)

7.3.4 Converting files with the Print Capture utility

If the LVC cannot automatically convert a file for whiteboard display, use the Print Capture utility to convert your file to a Sametime file (.fst, or “file for Sametime”). Consult the list of file types in the previous section to determine if the LVC can automatically convert your file. The Print Capture utility is a “virtual printer” that

allows you to convert files for display on the whiteboard. Before using the Print Capture utility, you must download and install it on your computer.

You can open a file in any Windows program and use Print Capture to convert the file to .fst (or “file for Sametime”) format for whiteboard display. The Print Capture utility allows you to configure the color, size, orientation, and resolution of the file to meet your specific needs. You can also generate files that are much larger than your screen can display, so that you can use full-page documents or drawings at full resolution during your session. This larger-than-screen capability allows you to use these large drawings without sacrificing detail.

7.3.5 Tips for Freelance Graphics presentations

The following information will help you create Freelance Graphics presentations that display well on the whiteboard. The whiteboard does not support transparent colors on images embedded in Freelance Graphics presentations.

If your Freelance graphics template has boxes that say “Click here to...” to guide you in placing various elements, you can follow these suggestions to prevent the boxes from appearing on the whiteboard:

- Edit the page layout and remove the unwanted prompt.
- Use a page layout that does not have “Click here” prompts.
- Replace the prompt with the suggested content.

Testing Freelance files

Perform the following procedure in Freelance Graphics to test your presentation for use on the whiteboard:

1. Open your Freelance file.
2. Choose **File** -> **Internet** -> **Convert to Web Pages**.
3. Click **OK**.
4. Click **Next**, and then click **Next** again.

Each page is converted to a .GIF file. If your computer slows down and becomes almost unusable on one of the pages, the whiteboard will not be able to convert your presentation correctly. Review your presentation and make sure you have followed the tips provided earlier in this chapter.

7.4 Stage 4: Implementation

You have designed your sessions and developed the materials needed for those sessions, so you are ready to go live! We have divided this section into two parts: pre-session and post-session activities. The actual live sessions are part of the

implementation stage as well. See Chapter 8, “Participation guidelines” on page 107 for guidelines for facilitators, producers, and students.

7.4.1 Pre-session

It is time to enlist the help of the broader team that is going to assist in the successful implementation of your session. This includes the marketing coordinator, LVC administrator, help desk, facilitator, producer, and any guest SMEs.

You will want to notify the LVC administrator and the help desk personnel about the details of the project. Both should be informed about:

- The anticipated number of users
- If these are new users
- The dates that marketing information will be sent out
- When users will be testing their PCs
- When the sessions will be live

For the LVC administrator, this will assist in capacity planning for your system. Additionally, the LVC administrator may be involved in the creation of new user accounts for some participants. Find out how much advanced notice your LVC administrator needs for creating new user accounts; close off registrations for your event with that timeframe in mind. For example, if your administrator will create new accounts within 24 hours of receiving the request, you should close off registration at least 48 hours in advance. This will provide time to get the accounts created and to send the account information to the users.

If you are planning to record your session, there are a few things you should check with your LVC administrator:

- Are there any limitations on session recording imposed at the system level?
- How long are the recorded files available on the server?
- What are the procedures to get access to the recorded file if you want to do post-session editing?
- How are recorded sessions archived if they are removed after a certain period of time?

For the help desk, this will assist them in planning for call volume. Call volume will be higher during the period participants are testing their PCs. The help desk can also expect a brief spike at the beginning of a session: it is not uncommon to have some users that do not test their system prior to attending, and who are then stressed while they try to work through a connection issue before missing

the session. Anticipating this allows the help desk to prepare and can make fielding these calls easier.

Marketing

If there is one unquestionable truth to come from early e-Learning initiatives, it is that you must market your training—whether you are delivering the training to an internal or external audience. Learners need to know what they are going to get out of training, so your marketing materials should include the answer to “what’s in it for me” for participants. The answers include how the training will help participants in their jobs, what experts they will have access to, and what kind or rewards are given to those that successfully complete the training. Of course, be sure to include easy instructions for users to register, as well as how they can find out more information about the course or its requirements.

At a minimum, use all of the channels you normally do for letting your audience know of training opportunities, such as intranets, training catalogs, company newsletters, and company Web sites. Emphasize the benefits of taking training using an LVC. These include not having to travel to a remote location and reduced down-time from their job. In addition, unlike self-paced training, participants will have access to peers and experts during the session. The last point is an important one if a virtual classroom is new to your audience and the only e-Learning they have been exposed to is self-paced training.

If the LVC is new to your organization, do not be surprised if your live training sessions are not immediately filled. Like any organizational change, you may need to use additional marketing in your early sessions to encourage participation. Here are a few things you can try:

- Deliver a popular class only through the LVC
- Provide a discount for the first class, or for the first bank of people to register
- Provide a small gift to all participants, or to all those that complete the class
- Provide free demonstration classes

Be creative and have fun, and your users will, too.

Course packs and notifications

As registrations come in for your sessions, send out your “course packs” to these participants. A course pack might consist solely of electronic documents you attach to an e-mail, or it may be a pack of print information and training resources (such as job aids) you send.

Sending a physical course pack can improve the experience for new users who are accustomed to receiving training materials in a classroom. A print workbook provides an easy place for participants to take notes, and it can be used during

the session as part of learning activities, for example, having learners complete worksheets or fill-in concepts in blanks on slides.

Other items to include in a course pack are:

- Minimum hardware and software requirements for participating in the course
- Instructions for testing one's PC before the session
- Help desk information
- Pre-session required work (including pre-tests)
- Instructions on where and how to log on to the course
- Conference call information
- Ground rules for participation in the session (these will be explained again at the beginning of the session)
- Tips for a successful learning experience (see 8.3, "Tips for learners" on page 111)

If new users are constrained by low bandwidth, ship a CD-ROM with the installation program for the Java applets and Active X controls required for the online meeting. This will eliminate extended download times for setting up their PCs.

If you intend to ship a physical pack to participants, include a registration cutoff point that will allow sufficient time for you to produce and ship the items to the users. Have an "all electronic" backup plan for last minute participants, or those that do not receive their packets.

Getting participants to test their PCs in advance of a session is critical to a successful session. If users do not, the session might be delayed or cancelled all together. Emphasize the importance of this to your participants, and be sure to provide an adequate time period in which to complete this testing. Consider including a deadline in advance of the session that users are required to complete this testing by. You might even require them to confirm by e-mail that they have tested their PC by that date. If no confirmation is received, you can send these users an e-mail reminder or follow up with them individually in advance of the session.

For all registered participants, use e-mail to remind participants of the scheduled event. Because there is no travel involved, it is easier for participants to forget about a live virtual class for which they have registered. No-shows are a common problem for live virtual classes. You may want to include an incentive for participants to attend your course, such as a cancellation fee. This is a reasonable approach, especially for virtual classes that have been capped, and

for those that have spent money on providing training resources in advance to registered participants.

Given that you want to maximize the effectiveness of the session, include reminders to complete the pre-work for a session in your e-mail notifications.

Practice for the producer, facilitator, and SMEs

Practice sessions for producers and facilitators is key to an effective session. There are two types of practice sessions that you may want to include in your project plan. One session is strictly for the producer and facilitator. The other session is a “dress rehearsal” that would include the producer, the facilitator, any guest SMEs that will be a part of the actual class, and one or more mock student participants.

The purpose of the first test session with the producer and the facilitator is to educate the facilitator on the operation of the tools in the LVC, as well as to establish teamwork between them. Although the producer will be the one responsible for performing most of the technical tasks in the session, the facilitator should still understand how to do these tasks. This enables the facilitator to be more reactive to the needs of the students in the session. If the facilitator needs to stray from the script to better respond to the needs of the learners, understanding the tools available in the LVC will enable the facilitator to leverage the tools as part of the response. Also, should the producer experience technical problems during the meeting, the facilitator can take over without interruption to the class.

The second test session is a “dress rehearsal” of the actual script for the planned class, with the appropriate whiteboard and other materials to be used. Do not just read through the script; perform the actions that are planned for the class. This will enable you to catch any missing steps or instructions left off of the script (give user permissions, or have users undo full screen) or tweak your presentation (for instance, switch to “share a frame” instead of “share a program”). It will also help to establish timing between the producer, facilitator, and SMEs. Finally, by including mock students, you make sure that no steps or instructions are left out from the student perspective as well.

7.4.2 Post-session

The post-session tasks are related to ongoing access to session files, access to recorded sessions, post-session learning, evaluations, and report generation. See 7.5, “Stage 5: Evaluation” on page 102 for more information on conducting evaluations.

After your session is completed, class participants can access or download the original files you included on the whiteboard, as well as saved chats or modified

whiteboards from the session. Let your participants know in advance if these resources will be made available to them, and for how long. The files will be available as long as your session details page is available. If you delete the session details page, or if it is deleted as part of routine server maintenance, these files will no longer be available.

If the session was recorded, you should provide students with specific instructions on how to access the recorded file, when it will be available (there may be a delay if you plan to do post-editing to the file), and for how long it will be available.

You might have included additional learning activities after your session as well, such as on-the-job activities or assessments. After your session, consider e-mailing your participants with the details regarding the availability of post-session resources and recordings, as well as any additional learning activity requirements.

Finally, LearningSpace - Virtual Classroom includes several reports that you can use after your session. Reporting is an important part of the evaluation process. It allows you to gauge the effectiveness of the training, and to provide management with information on the beneficial impact of the training for your organization.

7.5 Stage 5: Evaluation

The evaluation stage is a key part of any training program. It allows you to gauge how well the training program met the objectives for which it was designed. Most trainers today use some, if not all, of the levels of evaluation described by Donald L. Kirkpatrick. These levels are:

- Level one: Reaction
- Level two: Learning
- Level three: Behavior
- Level four: Results

The assessment and reporting tools included in the LVC can be used to facilitate conducting evaluations at each of these levels.

7.5.1 Level one: Reaction

The purpose of the first level evaluation is to gauge learner satisfaction with the training experience by soliciting feedback from the learners on a course evaluation form, sometimes referred to as a “smiley sheet.” Learner satisfaction is relevant because you want a course to address the needs of learners. By

soliciting their immediate feedback at the end of the course, you can determine the effectiveness of the course from the learner perspective.

If learners were dissatisfied with the course, this can affect long-term retention of the concepts or skills covered in the training. Additionally, it can influence whether these learners will participate in future training opportunities. Perhaps most importantly, dissatisfied learners will spread the word, and this can impact attendance or effectiveness of future classes.

Typically, a smiley sheet is set up such that the learner rates the course on a 5 point scale for several factors. Figure 7-1 is a sample smiley sheet you could use in your live virtual classroom:

Please provide your response to the statements below regarding this course. Your feedback is extremely valuable to us.

Select 1 - 5 on the scale based on the degree to which you agree with the statement. (Scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neither Agree, Nor Disagree, 4 = Agree, 5 = Strongly Agree).

- The subject matter presented in this session is valuable for me in my job.
- I was able to meet the learning objectives of the course.
- I was able to achieve my personal learning goals for this course.
- The material was presented in an engaging format.
- The activities in this course were fun and educational.
- The facilitator and guest experts were effective in presenting the class material.
- The class was well-paced.
- The subject matter presented was too advanced.
- The subject matter presented was too superficial.
- The subject matter was presented at an appropriate level.
- The LVC was easy to use.
- The LVC was an effective delivery method for this course.
- I would take another course delivered via the LVC.
- I would recommend this course to a colleague.

Please provide us with any additional feedback that will help us improve our future courses.

Figure 7-1 Example of level one feedback questions

You can use the built-in assessment tool of the LVC to create a level one evaluation for your class. Simply create an assessment with questions like those in Figure 7-1. For rating questions, use a multiple-choice format. For open-ended questions, use the short-answer format.

Since level one evaluations are most effective when learners complete them immediately upon finishing the course, it is best to attach this assessment to your session. Once you have reached the end of the session, have your participants fill it out it before they leave.

7.5.2 Level two: Learning

The purpose of the level two evaluation is to gauge whether the learners comprehended and learned the concepts presented in your training session. To better gauge the impact of the training session, a pre-test can be given before the training session to level-set the learners' existing knowledge. Once the learners have finished the course, they then complete a comprehensive post-test on the subject matter. Learner results before and after the session are then compared, and the degree of improvement is used as an indicator for the effectiveness of the training.

In reality, many trainers are most concerned only with the knowledge level of participants upon completing the course, and so they only deliver post-tests. However you choose to conduct your level two evaluation, the assessment tool of the LVC can help you.

To do pre-testing, create an assessment in the LVC and have users complete it prior to attending the session. For post-testing, create the assessment in the LVC, and have learners complete it after the session has finished. Once the learners have completed the assessments, you can use the reporting features of the LVC to help analyze the results.

7.5.3 Level three: Behavior

The purpose of a level three evaluation is to determine if the training resulted in any on-the-job behavioral changes. In other words, did the learners take what they learned in the session and begin to put it to use as part of their work responsibilities?

A precise determination of this would require intensive workplace observation of the learners after they have completed the training. However, the value of information of this detail is typically considered less than the expense required to gather it. Instead, it is common practice to use surveys or focus groups three months after the completion of the training program to gather this data.

Again, you can use the LVC to gather this data. You can conduct a focus group by scheduling another session, and use this time to discuss with the participants (and perhaps their supervisors) how they have put to use in their job what they learned in the session. For a survey, you can create another assessment, and ask participants (and supervisors) to complete it.

7.5.4 Level four: Results

A level four evaluation is intended to determine if the training resolved the original business problem or need that was identified in the analysis stage. You might not be able to use the LVC to conduct a level four evaluation in all circumstances. However, in some instances, an additional survey of the participants, their supervisors, and their co-workers will provide sufficient data for this evaluation. In these instances, you can once again use the assessment tool of the LVC to create the assessment and gather the data.

7.6 Other resources

IBM and Lotus offer two education courses about LearningSpace, taught using LearningSpace, so you can attend the classes to learn more about the LVC and experience it at the same time. The classes are:

- Facilitating a Live Training Session in LearningSpace 5
  - LS340 from Lotus Education
  - EL101 for IBM internal attendees
- Designing a Live Training Session for LearningSpace 5
  - LS350 from Lotus Education
  - EL102 for IBM internal attendees

7.7 Chapter summary

Good instructional design is key to any effective training program, whether the LVC is used to deliver part of the training or not. In this chapter, we show you how tasks related to the LVC could fit into an instructional design approach.

Although we cover a lot of considerations for designing and implementing an effective training program that includes the LVC, the fact is that the entire process can be completed in a fairly short timeframe, depending upon the complexity of the training topic.

For a relatively straightforward training need under very tight constraints, it would be feasible to complete the process through implementation in 2 to 3 weeks. This is far less than the process to deploy custom self-paced e-Learning content. In fact, deploying training to a large distributed audience using the LVC is faster than classroom training because of the reduction in travel time and logistical overhead.

Adapt this process to your own instructional design approach, use the tools in the appendices, and you will have a quick recipe for delivering effective training using the LVC in your organization.

8

Participation guidelines

In the previous chapter, we focused on a total approach to designing and delivering an effective training program that includes well-designed live virtual classes. Conducting the live virtual classes is one part of the implementation stage. In this chapter, we provide participation guidelines for those involved in the live session: facilitators, producers, and learners. For a definition of these roles, see 6.2, “Roles in the live virtual classroom” on page 70.

8.1 Tips for facilitators

The facilitator is essentially the online trainer in a virtual class. Like the classroom trainer, the facilitator is responsible for the delivery of an effective course to the learners. This section includes a few tips for effective facilitation in an LVC.

8.1.1 Technology

- Use the best PC available to you. How fast your system processes information affects the experience of all of the participants—especially if you are performing screen sharing.
- Use a headset, whether for IP audio or a conference call. Your speech will be more natural if you are using a headset as opposed to holding a phone receiver or hunching over a microphone. Also, this will free up your hands for typing and using the mouse.
- Don't field technical support issues during your session. If you've followed the suggestions in the previous chapter, you've instructed participants to verify their PCs will work in an LVC in advance of your session. Don't penalize those that followed your instructions by delaying the session to help those that did not. Refer them to your technical support resource to troubleshoot their issue outside of the session. Fielding technical support issues in the session can also make other participants uneasy, which is not a great environment for learning.
- Verify that you and your participants are on the same page. Since participants will likely be connecting with different PCs, at different bandwidths, and from different locations across the Internet, participants will receive and see the information in an LVC at slightly different times (sometimes referred to as "painting"). Early in your session, check that participants can all see a screen before you begin discussing it. This will give you an idea of the lag time between when you can see a change on the whiteboard and when your participants can.
- Keep positive about the technology. Sometimes you or the participants will have a technical "hiccup." Maintain a positive attitude. Participants will feed off of a negative attitude and it can interfere with their learning, even after a technical issue is resolved.
- Practice with LVC tools, so that they become second nature. Being comfortable with the tool means a smooth flow to your sessions, and enhances your ability to address student needs with on-the-fly activities.

8.1.2 Presentation

- Start your session on time. Your time in the virtual classroom is very limited; don't waste it by delaying the start of your session. If you do delay, you are opening the door for bored participants to be distracted by the pressures of their work environment—and you may not get them back.
- Follow the script, but be flexible. Your script was created as a guide for meeting the intended learning objectives. Keep it with you during your presentation, or you will very likely miss steps as you proceed. Stick to the script to ensure you meet the learning objectives, but don't be afraid to stray from it if you are receiving indications from participants that they need additional information or are having difficulty with the information as it was presented. Think of the script as an Instructor Guide for a standard classroom, and modify the course format as the needs of your learners require.
- Take your time. Don't rush through your session. Your learners need time to digest the information as you are presenting it, and their PCs need time to download the new screen information as you change it.
- Vary how you mark up the whiteboard. Using a single pointer tool to methodically go through several slides, clicking the pointer next to each bullet as you go is about as monotonous as not using any whiteboard tools at all. Vary how you draw attention to points on the whiteboard. Also, you don't need to point to every bullet as you go through. Save this for points you intend to emphasize.
- Watch for raised hands and questions posted in the general chat area. It is easy to focus so intently on the whiteboard and the material that you forget to monitor the rest of the LVC. Use the "fit to shared area" feature to compress your presentation materials so you can view the entire LVC at once.
- Use hand raising for quick and easy feedback. Asking for a show of hands is the easiest and fastest way of soliciting feedback from your participants. Use it frequently to keep users engaged. Based on raised hands, call on specific participants to explain their response further.
- Personalize the learning experience. Call on participants by name, and solicit your participants to share relevant on-the-job experiences. Your participants are often a source of valuable "front-line" information that may not have been captured in the training materials.
- Suspend accuracy requirements for chat spelling or grammar. Chat is meant to be a rapid communication tool. Let your learners know up front not to worry about correcting their chat messages.
- Don't get bogged down addressing a single question. It is OK to table a question that a participant wants to discuss in detail. You can address this

with the individual student during a private phone call or e-mail exchange after the session.

- Be a student in an LVC course. Sometimes referred to as “eating your own cooking,” try being a student in an LVC class. It will help you see what’s effective from the student perspective.

8.1.3 Voice tips

- Speak clearly and loudly. Because you’re sitting at your desk, it may be easy to fall into a soft, conversational voice, one that is hard for participants to hear and easy for them to tune out. Pretend that you are standing in front of a class. This will help you speak loudly and annunciate clearly.
- Vary your voice inflection. Your voice plays a pivotal role, because it is largely your presence in the online classroom. Be a little “over the top” with changes in your voice. It will keep participants interested in what you are saying.
- Get a conference room or other private location. Face it, part of being a presenter is performing. But you may not be as comfortable performing from your cube as you are in the private setting of a classroom. Plus, your officemates may not be too keen on hearing your performance either. Arrange for a private room in advance if this is an issue.
- Have fun! If you have fun with your presentation, your voice will carry your enthusiasm, and your participants will pick up on this.

8.2 Tips for producers

In the virtual classroom, the producer is the technical assistant whose function is to assist the facilitator with the presentation tools of the LVC. This frees the facilitator to focus on training participants and coordinating the involvement of any additional subject matter experts. Here are a few tips for being an effective producer.

- Keep one step ahead of the script. Your script is the guide that keeps you and the facilitator on the same page. Watch it closely, and always be ready for the next activity. This will prevent delays between activities and keep the presentation flowing smoothly.
- Set up a mock “student” PC. Have a second PC available to log on to the session with a generic ID. This will allow you to monitor how things are appearing to students as you proceed through the session.
- Use care with LVC permissions. Unless you are doing a whole-class activity, pass out permissions to a single user at a time. This will prevent the session from becoming a chaos of random participant activity. When using screen

sharing, always let participants know when you are giving them control, and when you are about to take it away.

- Ask permission when assuming control of another's shared application. Seeing someone drive an application in their secure PC environment may be a new experience for many participants, and it is good to ensure it is a comfortable one.
- "Whisper" feedback to facilitator. Provide feedback to the facilitator using the private chat messaging of the LVC. You can provide feedback on such things as the speed of the presentation or screen sharing, a missed step in the script, and even general encouragement as you proceed.
- Monitor for raised hands. It is easy for a facilitator to miss a raised hand. If you spot one, indicate this to the facilitator using a private chat.
- Determine who raised their hand first. If there are several participants who have questions, you can determine who raised their hand first by sorting the participant list by the virtual hand column. Do this by clicking on the virtual hand at the top of the participant list columns. This is also helpful for online games, such as sorting out who clicked their "buzzer" first.
- Lower hands after a question and response. Lower hands after questions have been answered, or general responses have been fielded. Participants will forget to lower their own virtual hand, and this can cause confusion as you proceed on to the next topic.

8.3 Tips for learners

Participating and learning through an LVC is a new experience for most people. Here are a few tips to help you have an enjoyable and educational experience when you attend a session.

8.3.1 Before the session

- Prepare your PC in advance. It is critical that you test the PC you will be using before the session. If you need to make a configuration adjustment, you may not have time to do it if you wait until the beginning of class. This means you could miss critical information, and you might miss the class entirely.
- Check the hardware requirements for your session. If your session will be using audio over the computer (IP audio), purchase a quality headset microphone. If your session will be using a conference call, consider purchasing a headset for your phone. In either case, a headeset will be less likely to cause fatigue during the session and will result in better audio quality.

- Schedule time for class activities. If you don't book time on your calendar, someone else will.
- Hang a sign that says "Do not disturb" or "Training in progress." This will let co-workers know that you are busy and should not be disturbed. If you are interrupted to deal with a workplace question, you may not be able to return or recover your focus. You wouldn't field basic work questions during a standard class, so don't do it while attending one in the LVC.
- Arrive ahead of schedule. By arriving early for a session, you give yourself time to address any technical issue that may have cropped up. Also, you don't want to arrive late since this negatively impacts performance of the LVC for all of the session participants.
- Complete your assigned pre-work before the session. By completing the pre-work in advance of the session, you will gain the maximum benefit from the class. It will provide you with the background information necessary to effectively participate in the session, and it will help you determine if you have questions, so you can get answers in the session.

8.3.2 During the session

- Call the designated help resource to resolve technical problems. If you are having technical problems, call the help desk. Don't delay the session for all of the other participants by having the facilitator help you troubleshoot.
- Mute your phone or your microphone when not in use. The ambient noise from your workplace can be a real distraction to other participants. *Never* put a conference call on hold, or the whole class will be delayed while they wait for your hold music to end.
- Follow the ground rules. Your facilitator will provide some guidance for interactions in the LVC, such as how to let the facilitator know you have a question. Follow these rules so that everyone can have an effective class.
- Arrange your screen for best viewing. You can set your LVC screen to the best view for you by moving the participant list or the interactive tools. You can also use the "Expand to full screen" or "Fit to shared area" buttons to better view the whiteboard or screen sharing.
- Don't multi-task; focus on the class. Just as it would be rude to be doing other work while attending a face-to-face training session, so it is while attending training in the LVC. It will interfere with your learning, and your lack of participation will affect others attending the training.
- Be responsible with control. When you are given access to the whiteboard or screen sharing, follow the instructions for using it. Don't advance the whiteboard screens or this will occur for everyone. Also, stop manipulating the mouse in screen sharing when asked.

- Close other applications. Closing other software programs will maximize the performance of the session on your PC.
- Let the facilitator know about delays. If you are not receiving the information on your screen that the facilitator is speaking about, ask your facilitator to pause a moment to let your screen catch up.
- Check your settings first if whiteboard or screen sharing appears distorted. If you've turned on the option to fit to shared area, the appearance of the whiteboard or screen sharing can be distorted, even when you've also set the shared area to display at full screen.
- Addressing firewall issues. If you are having problems because of a firewall configuration at your company site, try attending the session by connecting to an ISP outside of your company.

9

Cultural adoption and organizational readiness

Successful e-Learning deployment can answer the learning needs of the whole organization and is not restricted to training or skills acquisition.

In this chapter, we discuss the strategic and cultural perspectives of an effective implementation of e-Learning that includes live virtual classroom. We also explore the benefits experienced by an organization that fosters a culture of learning through its deployment of e-Learning. We discuss the structures, roles, and processes involved.

9.1 Learning strategy in the organization

In the new knowledge-based environment, organizations are looking to e-Learning as a foundation for good human capital management and growth strategies that impact the bottom line. In short, e-Learning is directly linked to business outcomes. The successful implementation of e-Learning, including LearningSpace-Virtual Classroom, therefore, has implications for *all* units of an organization. Buy-in to this strategy is a pan-organizational concern.

The learning organization is one that both fosters and grows from the learning of its individuals, including personal development through e-Learning. The development and growth of the organization relies on corporate learning strategies that are clearly and frequently communicated to all individuals within an organization: from the CEO, to administrative staff, to service personnel, to customers and suppliers. In the sections that follow, we describe ways of encouraging buy-in to learning strategies.

9.2 Share the vision across the organization

Think of an organization's culture as its personality or mindset. Culture relates to the values, assumptions, and norms that exist within both processes and individuals. The outputs of a culture include:

- Behaviors and attitudes
- Approaches
- Strategies

Actively managing cultural change is a key element in successful organizational change, such as the implementation of e-Learning and the development of the learning organization. This may be addressed by:

- Leadership
- Language (mission, operational, individual)
- Principles and commitments
- Time and resources

Organizational cultures (or macro mindsets) are largely an aggregation of the mindsets of individuals. In this sense, it is vital to gain commitment at the personal level to be able to effect wholesale cultural adoption.

Approach
Appeal directly to employees by highlighting *their* importance to the success of the e-Learning objectives of the company, and highlight the benefits to *them* of being part of a learning organization. This is a dual process that requires leadership for:

- Empowerment (enabling people to make a difference *that is tangible to them*)
- Commitment to a team effort (encouraging people to pull together)

So what are the "e-Learning objectives of the company?" This is where we need to be clear about strategy.

9.3 Lay the foundations for an e-Learning strategy

It can be very easy to overlook the basics when implementing changes that appear to be technology-led. Here are some basic questions that should be clearly addressed on live virtual classroom deployment:

- What business objectives do we want live virtual classroom to meet?
- What are the benchmarks for the realization of these objectives?
- Do we view live virtual classroom "success" as:
  - *Quality* of training delivery?
  - *Feedback* on the learning experience?
  - *Return on Investment* compared with traditional deliveries?
  - *Cycle time* for training development and delivery?
  - *Wider access* to finite resources (such as subject matter experts)?
  - *Other factors*?

Approach
Learn about the people and processes currently in place for learning and training in your organization. For example:

- How much is currently spent on training?
- What kind of training is it (cognitive, psychomotor, affective)?
- Who delivers the training?
- Where is this training delivered?
- Who receives the training, and why?
- Who develops materials?

Start making connections and explore possibilities. For example:

- What would be the effect of being able to deliver the same training in half the time?
- What would be the effect of cutting the cost of travel to training venues? Could you afford to spend *more* time or money (or both) on training?
- In what ways would a shorter development time for training affect the business?
- Are there any finite resources that could be better shared using a live virtual classroom, such as top level subject matter experts?

From this research, develop a clear idea of how live virtual classroom could help the business and write a white paper. Publish this within the organization and encourage debate and involvement from others.

9.4 Implement the strategy

Here we discuss some practical considerations to keep in mind when carrying out your strategy.

9.4.1 Integrate technologies

Where we see e-Learning being adopted in businesses today, we find it is being done on a project-by-project basis. That is fine for now, but as organizations continue, they are going to find new problems as their employees are faced with different interfaces, multiple registrations, non-standard software, and many online curricula with information presented in different formats.

Companies that are already experiencing these problems are turning to learning management systems (LMS). A good LMS will offer registration, tracking, testing, and administration, all coordinated by a single application that can be strategically and centrally installed, implemented, and administered.

The picture can be completed with the introduction of e-Learning portals—single Web sites through which learners can access any online course. We will see e-Learning portals and LMS being integrated with Knowledge Management (KM) systems, as companies move towards becoming full e-Learning organizations.

Approach

Where you introduce a live virtual classroom in parallel with other training solutions, consider how it will be incorporated within existing systems such as

- Course catalogs or portals
- Registration

- Enrollment
- Assessment
- Evaluation
- Messaging

Can current LMS systems or processes be integrated with the live virtual classroom? Would new processes fit with previous training programs that are still operational?

9.4.2 Do not roll-out

You “roll-out” software, but when developing the e-Learning enabled learning organization, this is a negative term. It suggests imposition: doing something *no matter what*—and learning does not happen like that.

Approach

Do not deploy—employ. Use the live virtual classroom where it is appropriate, and do not force it. Champion successful uses and allow others the time to make the connection between their needs and the ways in which LearningSpace-Virtual Classroom can answer them.

9.4.3 Culture change takes time

This is a classic excuse for those trying to implement new ideas that have the potential to fundamentally change an organization. However, we have already identified that the effectiveness of the live virtual classroom can have a direct impact on the bottom line: in e-Learning training needs to keep pace with the business cycle.

Approach

Start with projects in which live virtual classroom can be used quickly and effectively, rather than trying to apply it wholesale to the organization’s training needs. Early successes will gain attention from other potential adopters.

Identify where the need for new modes of learning is greatest and target them where appropriate.

A live virtual classroom will always be attractive because of its short development and deployment cycle. But only use it where a business goal is clearly identified, and when there is a clear advantage to using it over alternatives. Refer to “Blended learning” on page 17 for help in comparing the live virtual classroom with other learning types.

9.5 Transitioning to new roles

For a detailed look at the kind of roles involved in the live virtual classroom, refer to Chapter 6.

9.5.1 Overcoming resistance

In practice, resistance is usually seen as insurgency and as a threat to the viability of the new project. It is usually countered by selling the project even harder, or asking senior management to give the orders for a drive for corporate-wide commitment.

However, resistance is a sign of perceived and real objections, and is therefore both important and valuable. It is vital to understand what it is and where it comes from if we are to work with it *and use it to reach project goals*.

There are two broad sources of resistance to new projects:

- Lack of information about the project and its objectives
- Feeling left out or threatened by the project implementation

Approach

Do not go for a big launch that attracts “before” and “after” comparisons for the live virtual classroom. Instead, communicate regularly and specifically about the implementation of the live virtual classroom, so that people do not feel pushed out—let them “pull” in on the project.

Listen to objections and understand them. If they come from lack of information, inform. If the objections address something that is not considered in the deployment white paper, consider the issues raised and incorporate them explicitly into your project plans.

9.5.2 Traditional training personnel in a new context

The introduction of the live virtual classroom to an established program will require a re-examination of the roles of those delivering the program. For example, some face-to-face instructors might take on the role of subject matter experts rather than session facilitators. Such transitions need to be considered carefully.

Approach

Allow all training staff (including administrators and behind the scenes personnel) to practice taking part in several live virtual classroom sessions with live virtual classroom trainers, perhaps to study a new subject. Ask them which roles they

identify with. Encourage early planning of transition resources (for example, time to convert existing presentations; or training for producers and facilitators).

9.6 Assess the effectiveness of e-Learning

This section is a guideline for managers evaluating the educational effectiveness of the e-Learning solutions in their company.

9.6.1 Ten things we know about good learning

Here is an overview of what constitutes effective learning. The concepts outlined here are presented in detail in many places. See “Related publications” on page 145 for references to additional information. Use this list of ten elements as the starting point to educate decision makers in your organization. This is far from an exhaustive list, but these items are easy to understand, and managers can relate them to their prior experience.

1. There are four phases in any instructional interaction, including e-Learning. Anything less is not effective learning. The four phases are:
   - *Presenting information*
     The author of the lesson provides the student with content and information or a foundation for achieving the instructional objectives.
   - *Guiding the student in practice*
     Provides the interaction needed to assess that the learner has understood the concepts, principles, and procedures presented.
   - *Practicing by the student*
     Moves information from short-term to long-term memory and develops mastery of the content.
   - A*ssessing student learning*
     Was the instruction effective? What is the next step for the learner?
2. *Performance- and content-based objectives* are the foundation of effective programs. Lessons must be developed based on clear objectives, because objectives drive the four phases of instruction. *Component Display Theory* by Merrill (1994) suggests objectives should be classified on two criteria: performance and content. Performance refers to the three types of performance possible: remember, use (apply), or find (create a new instance). Content refers to four kinds of knowledge: facts, concepts, procedures, and principles. Based on a content-performance matrix, Merrill has identified optimal ways to present content, practice skills, and test knowledge. Good training programs have objectives that are clear, and measurable content and performance.

3. *Relevant and problem-centered programs are best for adults.* Effective lessons are relevant and problem-centered. For example, learners do not want to know how to use a word processor. They want to learn how to create a document, write a resume, or draft a letter. Good programs offer relevant content that is easy to transfer to the workplace.
4. *Limited learner control and deliberative structure enhance learning.* Learning is enhanced when programs delimit, sequence, and pace instruction. Well-structured programs reduce demands on short-term memory by organizing information into small pieces that are easy to remember and manipulate. The learner's skill and the complexity of the content should dictate the amount of structure and the amount of control granted to learners.
5. *Meaningful feedback improves performance.* Feedback during guided practice should provide prompts that are instructive. Effective programs use feedback to develop the learner's ability to self-diagnose their problems and eventually correct errors without prompts.
6. *Effective assessments test what has been taught.* Use a performance/content matrix to be sure you have assessed the learner's mastery of the stated goal (performance/content). For example, if the goal of the course is to teach learners how to calculate the standard deviation, the test should assess if the student is able to apply the procedures required to calculate the standard. That is, the test should avoid testing the definition of the standard deviation or testing the memorization of the steps, but instead it must determine if the learner can use the procedure to calculate the standard deviation. Effective online learning programs match test items to stated objectives.
7. *Adequate practice leads to mastery.* The phrase “practice makes perfect” may sound trivial, but there is a great deal of research that supports this cliché. There must be adequate practice if students are to develop fluency and mastery of content. There is no formula for determining how much practice is required. Based on the content and learner's skill level, the program must offer an adequate number of practice items and the items should range from simple to complex.
8. *Actively engaging the learner increases learning.* Interactions should go beyond simple multiple-choice questions that provide linear branching (correct/incorrect) and the “provide an interaction every three screens” approach. Questions should offer the opportunity to move the student forward to new information, backward to review information, and sideways to provide supplemental information. Active engagement results in increased enjoyment and engagement.
9. *Multimedia can reduce the effort required to convey a message.* The choice of media should be driven by the performance and content objectives.

10. *Teaching is only half of the instructional transaction.* e-Learning programs require motivated learners with fundamental computer skills and the tenacity needed to develop metacognitive skills for this environment.

The books referenced in “Related publications” offer a wealth of information on online learning and teaching.

9.6.2 Quality assurance

Good learning programs include quality monitoring and development mechanisms from the outset.

Approach

- Approach learning programs as you would any project. Ensure that objectives, benchmarks, deadlines, budget, and responsibilities are all clearly defined and adhered to.
- Seek feedback at all levels. Use it.
- Encourage peer review among instructional designers and facilitators.
- Run pilot programs. Gather detailed feedback; make alterations to the program if necessary; re-test.

Part 4

Appendices

This section includes worksheets and reference material to help you design and deliver your own e-Learning courses based on the ADDIE model. In addition, it includes a case study illustrating the process in action for a typical corporate training need in a fictional company.

A

File types converted to whiteboard display

The file types listed in Table A-1 are automatically converted by Sametime for display on the whiteboard.

Table A-1 File types converted for the whiteboard

File Types	Extensions
Ami Pro 3.x	.SAM
Bitmap	.BMP
CCITT Group 3 Fax	.TIF
CompuServe Graphics Interchange Format	.GIF
Computer Graphics Metafile	.CGM
Hypertext Markup Language (HTML)	.HTM, .HTML
JPEG file	.JPEG, .JPG, .JPE
Lotus 1-2-3 3.0, 4.0, 5.0, 6.x, R9	.WK*, .123
Lotus 1-2-3 97 and 98, R9	.123
Lotus 1-2-3 for Macintosh	

Lotus 1-2-3 for OS/2	.WG2
Lotus Freelance for OS/2	.PRS
Lotus Freelance	.PRE, .PRZ
Lotus PIC	.PIC
Lotus WordPro 96/97, R9	.LWP
Microsoft Excel 2.x, 3.0, 4.0, 5.0, 7.0, 97, Office 2000	.XLS
Microsoft PowerPoint 4.x, 7.0, 97	.PPT
Microsoft Word for Macintosh 2.0, 3.0	
Microsoft Word for Windows 6.0, 7.0, 97, Office 2000	.DOC
Paintbrush/DCX (multi-page PCX)	.PCX
PICT and PICT2 Graphics	.PCT
Portable Network Graphics	.PNG
Revisable Form Text	.RFT
Rich Text Format	.RTF
Sametime Print Capture File	.FST
Sametime Whiteboard	.SWB
Tagged Image File Format	.TIFF, .TIF, .EPS
Text file	.TXT, .BAT, .INI
Windows Metafile Graphic	.WMF
WordPerfect 5.x, 6.x, 7.x	
WordPerfect 8	.WPD
WordPerfect for Macintosh 2.0, 3.0	
WordPerfect Graphics	.WPG

B

Virtual classroom course script worksheet

Table B-1 Worksheet to create a course script

#	Objective	Activity type (WB, SS, WP, poll, AS, other)	Action and script	Screen content	Duration

C

Curriculum map worksheet

Table C-1 General description of curriculum outcomes

Course outcomes	
Enabling outcomes	
Available resources	

Table C-2 Detail of outcomes

Enabling outcome	Activity description	Timeframe	Delivery method

D

Analysis worksheet

Training need	
Knowledge/skills gap	
Other factors	
Constraints	
Budget	
Personnel	
Timeframe	
Other	

Audience profile	
Size	
Locations	
Topic experience	
LVC experience	
Motivation	
Technical infrastructure	
Hardware	
Software	
Connection Speed	
Firewalls/proxies	

E

An LVC in action: A training scenario

Chapter 7, “Instructional design” on page 77 provided a process overview for incorporating an LVC into an instructional design and delivery process using the ADDIE model. This appendix presents a scenario to illustrate this process in action, addressing a typical corporate training need. The scenario depicts a fictional company, GBPKS International, and describes how the company used a virtual class in a blended training program delivered to the global sales force.

Note: This scenario is not intended as a reference to any real company.

E.1 Analysis

GBPKS International, a global distributor of office supplies, was faced with a problem. They had implemented an expensive sales automation tool a year earlier, but it was not being appropriately utilized by the GBPKS sales force. Members of the 200 person sales team were supposed to enter information about sales prospects into the system. This information was then to be used to produce a sales forecast, which impacted everything from staffing, to purchasing and distribution, and corporate budgeting. The lack of reliable information from this tool was turning into a real liability.

To resolve the problem, Jenny was tasked to provide training on the software to the global sales force ASAP. Because of the urgency behind the request, Jenny knew she had to do a fast analysis. She did a quick anonymous survey of several members of the sales team, and a phone interview with the few sales people she could track down. There were definitely some knowledge/skill gaps related to use of the software, especially on how to use the custom fields and features added to the system by the software vendor to meet GBPKS's needs. However, Jenny quickly learned that several factors other than a lack of understanding of how to operate the software were contributing to why the sales force was not entering data. Some sales members considered entering the data a waste of their time—they could be calling on potential customers. If this was the prevailing attitude, it wouldn't matter if the sales members knew how to use the software, they wouldn't be *motivated* to use it. GBPKS needed to pull out the carrot (or more likely, the stick) to motivate sales members to use the software.

Jenny passed this information on to the Sales Director who had requested the training. The Sales Director decided that the company would implement a key business process to motivate sales members to use the software: withholding payment on expense reports if information in the sales software was not kept current. In addition, application training would be offered to insure everyone knew how to use the software. The Sales Director would make the announcement at the end of the week, and the entire sales team then needed to be trained before the new policy took effect in two months.

So, Jenny had identified the training need and had a clear timeframe to deliver the training in. She had a very limited budget, certainly not enough to pay for her to travel to all of the sales regions for face-to-face training (not that there was time for that in any case). One definite plus was that GBPKS has the LVC, hosted by a premier IBM business partner, so Jenny knew that key personnel were already in place to deliver this training. After a call to her LVC hosting company, Jenny learned that the PCs deployed in her organization were verified to meet the hardware and software requirements when the LVC was launched, but not all of the sales people had accounts on the system.

With this information in hand, Jenny completed her profile of her audience, knowing that she'd have some new LVC users in the group. Next she moved on to designing the training curriculum. Just in time, too, since the policy-change announcement had just been made. Oddly enough, Jenny was now receiving requests for training directly from members of the sales team—on the software and on details of the new policy. She let them know that training plans would soon be announced.

E.2 Design

Jenny did some quick learning of her own to understand the software and what the sales team would need to know. Based on this, she identified the learning outcomes for the course, and broke them down into enabling outcomes. She then investigated what resources were available to her.

E.2.1 Gathering resources

Jenny was quite happy with what she found. It turned out that she could cover approximately 70% of the training content through existing resources. GBPKS's contract with the software vendor included access to a self-paced training module on how to operate their software. The software also included on online help FAQ to assist users with questions. This wouldn't cover the customizations to the software or the new company policy, but it would provide the basics. In a call to the software vendor, Jenny was able to convince them to provide laminated quick-start reference sheets for trainees and some limited time from one of their product specialists. Finally, the Sales Director indicated that he would free up a few hours to help clarify questions about the new policy as well.

E.2.2 Building the curriculum map

Resources in hand, Jenny put together her curriculum map. She planned to use a short broadcast class to train the sales force on the details of the new policy. That would maximize the time she had with the Sales Director. She would solicit questions from the sales force in advance, and then interview the Sales Director in a broadcast class that utilized the A/V features of the LVC. The visual presence of the Sales Director in the class would emphasize the importance upper management was placing in this project, and would provide additional motivation to the audience to complete the other elements of the training program. By using the broadcast feature of the LVC, conference call costs would be avoided and the entire sales force could attend. Jenny planned to have the session recorded so that people who could not attend the class at the scheduled time could view the presentation afterwards.

Next, the sales team members would complete the self-paced training provided by the software vendor, followed by an online assessment across the LVC to verify comprehension of the software basics. Each sales team member would need to complete both activities prior to attending an LVC session that would focus on use of the custom features of the application.

Jenny would schedule five repeat sessions to address the custom application features at varying times that were practical to her global audience, and attendance at one of the sessions would be mandatory. At the end of the sessions, participants would complete an online smiley sheet, or Level 1 evaluation of the session.

After the session, participants would enter a sample case into the sales system. Should anyone need help with this activity, they could contact the training staff to arrange for an informal tutorial where they could do the activity together using the screen sharing capabilities of the LVC. Additionally, participants would complete a post-test to measure their understanding of the concepts covered in the LVC class. Both of these activities would be completed at least one week prior to the new policy taking effect. This would provide a one-week buffer to address the needs of anyone that had not completed the training. Jenny would then provide reports on the results of the training to the Sales Director.

Three months after the training had been completed, Jenny would receive an update on usage of the sales system. Additionally, she would conduct optional focus group sessions to follow up with participants. Jenny would then compile this data for the Sales Director, and they would determine at that time, if any, additional actions were required.

E.2.3 Scripting the sessions

With her curriculum map in hand, Jenny proceeded to script her two classes, the broadcast class and the custom features class.

She sent out a request to the sales team for questions they had on the new policy, and sat down to put together her script. The class would be available for participants to log on 15 minutes prior to going live, and the whiteboard would display a welcome slide in the interim. Jenny would begin the session with a welcome, and a brief overview of what would be covered in the class. Since participants wouldn't be using the interactive tools, she'd leave out an overview of the LVC interface, and go right into the meat of the class. Jenny scripted out 6 slides to provide an overview of the purpose of the new policy, and then the technical details of it. During the class, the Sales Director would speak through the entire presentation, and Jenny would use the whiteboard tools to draw attention to the points being made. She estimated that should take 20 minutes. In interview fashion, Jenny would then present the Sales Director with questions

sent in from the field. She planned on fielding four questions in this manner, which would take approximately 10 minutes. Finally, Jenny would finish the class with a general thank you and a quick plug for the remainder of the training activities. The entire session should be completed in 35 minutes, which should be long enough to get the intended message out, but short enough to keep the audience tuned in.

The custom features class would be a moderated class. This would allow Jenny to use all of the tools of the LVC to create an interactive learning session. Jenny decided to use the company's internal phone conferencing system to provide audio with the session, and since video wouldn't add much to the purpose in the class, she decided not to use video. The conference call and the LVC class would be available for participants to log on 15 minutes prior to the start of the session.

Jenny outlined several features and tasks that participants must understand by the end of the session. Knowing that this would be the first LVC class for several participants, she decided to avoid any activities that could be too challenging to a new user, such as breakout sessions. She'd have the facilitator begin the session with a quick hello and a raise of hands, and then pass to the producer for a quick overview of the tools that would be used in the session. The producer could complete the overview in 5 minutes.

Once the overview was done, the facilitator would give more formal introductions of herself, the producer and the guest from the software vendor. To get things started, participants would put 3 learning objectives into the chat space. The facilitator would review the objectives of the online class, highlighting those that participants had already mentioned. All in all, the introductory activities should be completed in 15 minutes.

Wanting to have participants read, hear, see, and do; and thus, to best facilitate their retention, Jenny planned to use several slides to outline the process and the custom application features the sales team should be using. To keep participants engaged, she would include periodic polling questions and hand-raising responses to tap into how participants were currently using the application. She also planned to add content to several slides using the whiteboard tools as she moved through the presentation. She estimated that this presentation would take approximately 20 minutes.

Next, the expert from the software vendor would use screen sharing to demonstrate how to use the custom features of the application with a sample case. Jenny decided against having participants control any of the screen sharing since so few would have the time to do this, plus participants would have a chance to practice what they'd learned after the session. Jenny allotted 20 minutes for this demonstration.

The facilitator would wrap the session up with Q&A. But before opening the floor for questions, the facilitator would use the Web Pages feature to send all of the participants the URL for the online FAQ for the software, and then have participants bookmark the site so they could easily access it after the class. This should be completed in another 20 minutes.

Finally, the facilitator would end the session by having participants complete an attached smiley sheet evaluation which would take about 10 minutes to complete. The entire class would run approximately 90 minutes, right in the sweet spot for an LVC class.

Jenny then moved on to develop the training materials.

E.3 Development

With the scripts in hand, the development tasks turned out to be very straightforward. Jenny knew exactly what she had to put together. She quickly developed the two PowerPoint presentations that would be used, one for the broadcast class and the other for the moderated class.

With the presentations complete, she set up the LVC with all of the course information: session schedules, cap sizes, whiteboard documents, Web pages, agendas, and assessments. Finally, she wrote the instructions and the sample case for the offline activity.

All the pieces were quickly in place, and Jenny was ready to put the plan into action.

E.4 Implementation

Jenny gave her LVC Administrator a call, and asked him to have user accounts created for the LVC users from the sales team. There was a two-day turnaround on new user requests, but this was well in advance of the first class. Next she called the hosting company to let them know of the training plans so they could prep their help desk. “No problem,” said her account representative, “and thanks for the heads-up.” Jenny hoped the rest of the implementation would be so easy.

Next she sorted out how best to market this training. The fact was, her audience had plenty of individual motivation to seek this training out, so the biggest challenge was getting the word out on the details of the training. To do this, Jenny planned a three-pronged communication approach. First, she would have a small “ad” put on the company intranet, since this was the company portal that the sales team worked through every day. Next, she’d have a brief overview of the

training added to the monthly sales update e-mail. Finally, she'd do a direct e-mail notification to all of the sales team. All three would include direct links to the LVC catalog to make it easy for the sales team members to register for the sessions of their choosing.

Registrations came in quickly as soon as the first marketing efforts were out. Jenny had their training assistant send out the "welcome pack" e-mail as soon as new registrations were received. The e-mail contained information on the training, guidelines for participation, and instructions on how each user could test their system. Given that there were new LVC users in this audience, Jenny wanted to make sure they received this information as soon as possible so they could test their PCs well in advance of the first class.

With the class dates rapidly approaching, Jenny arranged for some practice dates with all of the class presenters: producers, facilitators, the software expert, and the Sales Director. She scheduled four practice sessions, two for the broadcast and two for the moderated classes. Jenny knew that the first practice would be a little clumsy, as all the participants became accustomed to the script and their roles. The goal was for the second practice to run very smoothly.

The practice sessions didn't go quite as smoothly as Jenny had hoped. The software expert kept trying to use short-cut keys during the screen sharing, and Jenny had to keep reminding him to use the menu commands so that everyone could see what he was doing. Plus the Sales Director was very long-winded on his answers to the questions. Jenny decided to cut one of the questions from the Q&A section to keep the session on schedule. They'd follow the session up with an e-mail that included answers to all of the questions that were submitted. As for screen sharing, the facilitators were just going to have to chime in a reminder during the session should it be needed. Overall, there were no show stoppers, and the classes would soon begin. A reminder e-mail was sent out to the entire sales team the day before the broadcast class.

From Jenny's perspective, the first class went very well. The practice sessions had really helped Jenny build a rapport and solidify her timing with the Sales Director. In fact, the session went so smoothly, Jenny threw in the question she had pulled from the script. The Sales Director didn't miss a beat. Later, Jenny found out that several people hadn't prepped their PCs in advance and so had missed the beginning of the class. Typical, but these folks could at least view the recorded session, and then everyone should be ready for the next class.

Before the next class, Jenny ran a report to check the test scores on the self-paced training assessment in the LVC. Most of the scores were just fine, but she expected that a few people would be taking advantage of the one-on-one follow-up sessions. A handful of people hadn't completed the assessment yet, so Jenny sent them an e-mail reminder that this must be completed before the class.

The classes ran extremely well. Two people in the Singapore office had network problems the day of their scheduled class and were unable to attend. But they were able to register for a later class, and attended that day without a hitch. As Jenny expected, a handful of people requested additional one-on-one training, but the majority of the sales staff went on to complete the sample case after the classes without assistance or problems.

E.5 Evaluation

The smiley sheet evaluations came in with very high ratings. The sales staff really appreciated hearing directly from the Sales Director and the software vendor, and everyone rated not having to travel to attend the training as extremely valuable.

As for the level 2 evaluations, everyone eventually was successful in entering the sample case, and this was by far the most important measure. On the assessment, scores were mostly in the 90^{th} percentile, with a few lagging in the 80^{th} percentile. Three months later, the data in the sales system had vastly improved. Sure, there were still some gaps, but big changes had been made in a very short time, and GBPKS was now leveraging vastly improved internal intelligence as it formulated its strategy for the next year.

Ultimately, all indicators pointed to a successful training program that was completed prior to the implementation of the new policy. The Sales Director was very pleased with Jenny's report on the results, and told Jenny, "We ought to do more of our training that way."

"What a concept," Jenny thought. (Oh well, one convert at a time.) Jenny took a minute to reflect on how chaotic the whole project would have been for her if she had to deliver the training in person. It had taken Jenny a while to adjust to training using this new medium, but it sure had been worth it.

F

Additional material

This redbook refers to additional material that can be downloaded from the Internet as described below.

Locating the Web material

The Web material associated with this redbook is available in softcopy on the Internet from the IBM Redbooks Web server. Point your Web browser to:

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ftp://www.redbooks.ibm.com/redbooks/SG246842
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Alternatively, you can go to the IBM Redbooks Web site at:

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ibm.com/redbooks
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Select the **Additional materials** and open the directory that corresponds with the redbook form number, SG246842.

Using the Web material

The additional Web material that accompanies this redbook includes the following files:

File name	*Description*
manage.mpg	MPEG video

System requirements for downloading the Web material

The following system configuration is recommended:

Hard disk space: 80 MB minimum
Operating System: Windows/UNIX
Processor: 400 mHz or higher
Memory: 192 MB

How to use the Web material

Create a subdirectory (folder) on your workstation, and unzip the contents of the Web material zip file into this folder. Double-click on the unzipped file, and your default video player will run the video.

If this does not work, find and install a video player, such as RealPlayer®.

Related publications

The publications listed in this section are considered particularly suitable for a more detailed discussion of the topics covered in this redbook.

IBM Redbooks

IBM Redbooks are published about a variety of technical subjects. They can be viewed from the Web, downloaded, or ordered as hardcopy. For information on ordering, see “How to get IBM Redbooks” on page 147.

Other resources

These publications are also relevant as further information sources:

- The Management Assistance Program (MAP): http://www.mapnp.org/library/org_thry/culture/culture.htm
- Block, Peter, *Flawless Consulting,* Jossey-Bass/Pfeiffer, San Francisco, 2000.
- Everett, Rogers M., *The Diffusion of Innovations,* Free Press, New York, 1995.
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- Dwyer, F. M., *Strategies for Improving Visual Learning,* State College, PA, Learning Services, 1978.
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- Rowntree, D., *Basically Branching: A Handbook for Programmers*, MacDonald, London, 1966.
- Tough, A., *The Adult's Learning Projects*, (2nd ed.), Ontario Institute for Studies in Education, Toronto, 1979.

Education

- *Facilitating a Live Training Session in LearningSpace 5*
  - LS340 from Lotus Education
  - EL101 for IBM internal attendees
- *Designing a Live Training Session for LearningSpace 5*
  - LS350 from Lotus Education
  - EL102 for IBM internal attendees

Referenced Web sites

These Web sites are also relevant as further information sources:

- Component Display Theory

  http://gwis2.circ.gwu.edu:80/~kearsley/merrill.html
- The Management Assistance Program (MAP):

  http://www.mapnp.org/library/org_thry/culture/culture.htm

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You can also download additional materials (code samples or diskette/CD-ROM images) from that site.

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