Bringing the classroom to the student through virtual learning delivery

Transforming enterprise learning to help build a Smarter Workforce

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Executive summary

Dramatic and pervasive shifts in the global economy have wrought a groundswell of change—both in the profile of today's workforce and in the work environment along with harsh new economic realities—all of which pose challenges to companies seeking to outpace continued change and to outlast their competition.

Because the very nature of work itself has morphed, few organizations are immune to the need for change and enhancement in how learning is delivered. To address the multitude of challenges or "the new normal," savvy leaders recognize that cost-effective, enhanced employee learning is central to improving short- and long-term business performance. Today, an increasing number of organizations realize the necessity of preparing their employees to "outperform" and are seeking alternative learning models to:

- Equip employees with new and enhanced skills
- Deploy learning programs faster, more broadly and more efficiently
- Adopt more creative and cost-effective means to help employees learn the right skills at the right time

Businesses that want to thrive—not just survive—view learning as an ongoing necessity, a competitive differentiator and a key strategic enabler of a Smarter Workforce in which employees are empowered and motivated to make a difference.

One way organizations are building a Smarter Workforce is by enhancing the efficiency of learning delivery using the "virtual classroom," a time-tested model that can be an effective and increasingly mainstream tool in today's learning delivery arsenal. Human Resources (HR) leaders can benefit from understanding the components and key success factors of the virtual classroom as illustrated by the successful implementation of the model within IBM for educating our globally dispersed workforce.

The virtual classroom, then and now

A virtual class is understood to be any formal learning experience that is delivered synchronously by an instructor to a remote and dispersed audience of learners with the assistance of technology.

Those familiar with the concept may use other terms to describe virtual classroom-based learning such as "instructor-led online," "live virtual classroom" and "web-based classroom."

In the early days of virtual classrooms, learning delivery may have been enabled by the use of satellite or videoconferencing solutions. Today, since the advent of the social and collaborative web, software—often delivered from the cloud—has become the primary means of delivering virtual classes.

Typical virtual classroom software offers these features:

- Live video and audio transmission
- A presentation area with mark-up and highlighting tools
- A shared whiteboard
- Integrated instant messaging
- Polling, survey and quiz or assessment tools
- Class management tools, including attendee registration or status, microphone control and virtual breakout rooms
- Capability to record the class

Virtual classrooms benefit stakeholders

There are substantial benefits, both quantitative and qualitative, to delivering learning in a virtual classroom environment. The most tangible are helping:

The learner and their employer

- Eliminate travel time to a brick-and-mortar education center, including associated travel and living costs
- Allow for more flexible modes of attendance that can be less disruptive to competing work requirements
- Enable record and playback of classes, allowing learners to return to the learning when and where they wish
- Allow less confident learners to participate anonymously and without the need to physically "go back to school"
- Allow hands-on "labs" to be completed outside of classroom teaching sessions at the learner's convenience

The learning provider

- Eliminate the time and expense for the instructor to travel
- Increase flexibility in course scheduling
- Simultaneously train learners in different countries and in different time zones
- Increase the viability of otherwise limited-interest courses
- Reduce delivery costs (classrooms, hardware, administration)
- Reduce or eliminate print and distribution costs by sharing materials in a digital form
- Obtain global reach at little additional cost
- Add a delivery channel for existing course content
- Simplify management of delivery infrastructure
- Establish multiple channels of collaborative learning, such as whiteboards, instant messaging, voice over IP, polling, surveys and breakout rooms

Key considerations for successful virtual classroom delivery

It is not enough to simply port classroom learning content to the virtual classroom model. Learning providers must carefully consider the orderly and logical transition from the former

delivery model to virtual learning and be mindful of the nuances of each that may or may not be portable from one environment to the other.

IBM Learning Solutions specialists have identified four critical success factors in the transition from classroom to virtual classroom learning delivery.

- Invest in highly skilled instructors for virtual learning delivery. A knowledgeable, astute and well-trained instructor is one of the single most important elements of the virtual solution.
- Adapt the design of all instructor-led learning content to accommodate the needs of virtual classroom delivery. IBM has found it to be highly desirable to design for classroom and virtual classroom using a single source.
- Choose a rich virtual classroom delivery platform, rather than a virtual meeting tool. Not all web-based meeting tools provide interactive capabilities that are rich enough for a successful virtual classroom environment.
- Build a robust "e-lab" environment that allows learners access to virtual hands-on labs "anytime, anyplace." It is important to help ensure that the environment has around-the-clock support to respond in the event of learner difficulty.

We can examine the four key considerations for successful virtual classroom delivery in greater detail.

The instructor remains vital

As is the case with face-to-face learning, the instructor can make or break a class. The skill and experience level of the instructor is one of the most important and flexible components of the learning delivery solution, enabling successful knowledge transfer, bringing the learning experience to life, and increasing learner engagement.

Although many of the skills of an experienced instructor are transferable to the virtual classroom, there are techniques unique to virtual learning that should be acquired, such as the appropriate use of virtual white boards, surveys, polling and instant

messaging tools. Furthermore, some existing skills must be adapted to virtual delivery, such as maintaining learner engagement by appropriate use of questioning techniques, group activities and practical exercises. Because instructors cannot see their audience gazing out of the window—nor easily identify the learner who may be struggling to keep up—like they can in a face-to-face environment—knowing how to use the features of virtual classroom software to observe student engagement is crucial.

Instructors preparing to teach in a virtual classroom environment should experience the virtual classroom from the learner's perspective as well as that of the leader. Virtual classroom technologies often provide the means to record and play back classroom sessions, capturing the on screen presentation, audio and the output of inline tools such as surveys, polls, quizzes and instant messaging chat. Reviewing recorded sessions offers instructors the potential for observing good practices, critical reflection, peer review and assessment.

To help enable the most effective interaction between the instructors—who are subject matter experts (SMEs)—and their students, it can be beneficial to have two people conduct the virtual session: the SME instructor and an experienced virtual classroom facilitator. The facilitator can observe and communicate the engagement of the class to the instructor while the latter primarily focuses on conveying the key points of the content. This pilot and co-pilot approach is particularly important when SME instructors are unfamiliar with virtual classroom delivery or are transitioning from one virtual classroom technology to another.

Design learning content for virtual delivery

By preparing learning content design, materials created for the physical classroom may also be successfully used in the virtual classroom.

The adaptations focus more on emphasis than on substance, thus the cost of designing for classroom and virtual classroom should not be appreciably different. In the experience of IBM Training, there is no incremental design cost for virtual classroom-learning materials when using IBM-developed methodology and tooling to help create and maintain physical and virtual classroom materials from a single source.

When IBM develops an instructor-led course, we simultaneously create a virtual course more than 90 percent of the time.[1] Furthermore, the development process for instructor-led courses actually exports corresponding virtual content, so there is one development process with the option for two outputs.

Modules or topics should be designed so that the opportunities for learner engagement are optimized and content presentation is capped at no more than 20 minutes of teaching per session. Virtual classroom attendees benefit from shorter modules and plenty of small breaks. In a virtual class, the instructor has to constantly maintain engagement by structuring frequent interaction with and among the learners, which should be allowed for in the design of the course content. Truly, less is more when it comes to presentation material for the virtual classroom, especially less text and less clutter on screen. It is difficult to digest a crowded and overly complex slide in a classroom; even more so when that slide is reduced to only a portion of a computer screen display area.

Whatever design changes are made to accommodate virtual content, the instructor should have the freedom and flexibility to choose the more appropriate instructional techniques for the particular audience and to manage the timing of the class.

It is advisable to develop as much content as possible for physical and virtual classrooms from a single source, designing it for delivery in both environments. Exceptions to the single source guideline are courses where direct physical access to hardware is an absolute requirement or where the course includes extensive discussion and team-based practical exercises. Examples of exceptions include:

- A lab exercise in which learners practice physical assembly of a local area network, plugging in cables and taking note of the status of indicator lights on network devices
- A practical exercise in which a group of learners plan the structure of entity relationships in a proposed database and discuss the merits of various potential database structures

In both scenarios, it is possible to use software to replicate the requirements of these lab exercises, although learners would first need to learn how to use the software and—in some cases—the software would require custom development.

Choose your delivery system with care

Thorough consideration must be given to the capabilities of the delivery technology to help enable interaction throughout the learning session, especially where collaborative group activities are part of the course content. This is where the distinction between virtual meeting tools and virtual classroom tools is important to understand.

A wealth of virtual meeting tools are available on the web. IBM® SmartCloud® Meetings is just one example among many. Virtual tools are popular for conducting meetings online and at IBM are now as pervasive as email or phone conversations. Note that virtual meeting tools usually lack features of virtual classroom tools, for example:

- Polling, survey, quiz, assessment, whiteboard and virtual breakout room functionality
- Features such as recording and voice over IP integration, relying instead upon bridging a web presentation with a telephone conference call number
- Scheduling, enrollment and completion tracking capabilities that are vital for formal learning events

By contrast, a virtual classroom delivery system is a higher-order tool, designed specifically for learning that should have a rich set of functions required in a classroom setting. For example, IBM uses Saba Centra technology for delivery of its virtual classes. Other solutions such as Interwise, Blackboard Connect (formerly Elluminate) and Kenexa Learning Suite have similar features and functionality.

Invest in lab infrastructure and learner support

Most of IBM's commercially available training content delivers skill development on the company's IT products and associated technologies—both hardware and software. Consequently, learning materials are usually designed with extensive hands-on labs that aid learners in developing new skills in a practically risk-free, yet realistic environment.

The transition from a network of geographically dispersed physical classrooms in locations around the globe to a virtual classroom environment has been very effective for IBM. It has been best served by a centralized lab server environment with lab images prepared for all the courses that require hands-on lab exercises.

The IBM lab server supports hundreds of virtual classes, reflecting IBM's broad product portfolio, running in all time zones, seven days a week, almost every day of the year: a near around-the-clock availability requirement. The training portfolio includes more than 1,400 virtual classroom courses, each with its own hardware, software and configuration requirements. This environment is also available outside of scheduled teaching sessions, further increasing flexibility for the learner.

Supporting the lab server environment is a global learning help desk, which is available to assist instructors and learners with almost any issues they might experience regardless of their location. This aspect of the solution is of particular importance when learners and instructors are physically distant from each other and also from the lab servers upon which practical exercises are performed. Support is available in near-real time, because neither instructor nor learner can afford to be inhibited by technical or administrative issues during a scheduled class.

Virtual classrooms are well-suited to the contemporary workforce

Because studies have shown that up to 70 and 80 percent of learning is accomplished informally on the job and most funding in organizations is spent on formal learning, we apply our experience and expertise to orchestrating innovative learning approaches that combine informal information sources with formal methods: both classroom instruction and web-based training. Our work with clients and serving internal learning requirements has provided us with a wealth of experience that helps us to design programs that more effectively bridge skill gaps, particularly for geographically dispersed organizations.

Blended learning programs use formal courses, collaborative experiences working with others through electronic team rooms, and immersive experiences such as single and multiplayer "serious games" such as virtual worlds. These technology-enabled immersive learning experiences particularly appeal to a multigenerational workforce, including college students entering the workforce today and, increasingly, to more experienced generations of workers.

Virtual classroom success at IBM

The shifting nature of global business has necessitated change for almost all organizations. IBM has likewise made adjustments in responding to our own requirements for innovative strategies to address many of the challenges that our clients face, including:

- Budget constraints
- Matching learning cost to business needs and HR dynamics
- Demand for rapid skill development to support business opportunities
- Reducing employee time away from the job for learning
- Building enterprise knowledge

Prior to the introduction of virtual classrooms within our own organization, hundreds of our physical classrooms around the globe were equipped with PCs, servers and networked peripherals. Using the principles outlined in the preceding pages, IBM hardware and software brands have helped successfully transition our global training business from a predominantly physical classroom delivery model by integrating virtual classroom and pre-recorded classes alongside conventional classroom courses and self-paced eLearning.

For many IBM clients and most employees attending IBM IT product training courses, the virtual classroom is now a mainstream method of learning delivery. Virtual instruction is supported by a remote lab server environment that is robust, reliable, available, serviceable and security rich. The server, which is centrally maintained and supported, may be accessed from virtually any desktop or laptop computer connected to the Internet and can deliver multiple software images for many classes running in parallel.

What is special about learning transformation at IBM?

IBM's successful learning transformation is notable for the scale and speed with which transition took place. All the more so considering the numerous acquired companies that have been integrated into the business during the transition period, each bringing its own portfolio of learning content. Although various IBM hardware and software brands began their transitions at different times, each completed its learning transformation in less than two years.[2]

One IBM software brand reported that, in less than two years, 33 percent of previous classroom courses were also being offered via virtual classrooms for clients in North America, reducing delivery and travel costs for clients while maintaining revenue for the training business unit.

During 2012, IBM Training increased the size of its training portfolio, rolling out approximately 1,131 new and updated courses, developed from a single source when possible, broken down as follows:[3]

Instructor-led courses [face-to-face]	433
Virtual instructor-led	483
Self-paced virtual classroom (recorded virtual instructor-led)	215

How IBM supports clients deploying virtual classroom learning

We find that in many of our client organizations, learning is broadly dispersed across the organization, rather than as a centralized function. Different lines of business and geographic units often maintain independent control of their own budgets. This can be problematic in several ways:

- Consistency of messaging across the organization is undermined
- Reuse of content is limited, resulting in higher costs
- Duplication of vendors across the organization reduces economies
- Learning may be cut in order to meet a short-term budget challenge
- Spend adds up to a large, unmanaged budget line item

Today's organizations require better budget management to help ensure that their learning spend is allocated to the highest-priority and most productive purpose for the enterprise.

The expertise and skill that IBM have developed during our own global transition from physical classroom to virtual classroom learning delivery is now available to IBM clients. When we responded to clients' needs for increased flexibility in education delivery and reduced travel costs, we naturally turned to our deep understanding of technology-based learning in an effort to model our client solutions.

By providing a robust solution all the way from linking learning strategies to business strategies and through the delivery of learning, IBM Global Process Services Learning specialists work with clients to guide establishment of a governance model that allows better management of learning spend. IBM Learning Solutions designs and develops content for clients that can be:

- Suitable for delivery in both classroom and virtual classroom settings
- Produced from a single source
- Easier to maintain and translate or localize

Our global delivery center staff manages the end-to-end delivery process for classroom and virtual classroom-based learning, with support available to students around-the-clock geographically.

IBM also provides virtual classroom facilitators who undergo rigorous training and random performance assessments to maintain high-quality delivery support to our clients' instructors. Our learning specialists support clients in building their own virtual classroom delivery expertise, aid in the transition of existing content from classroom to virtual classroom, support the rollout of virtual classrooms on a global scale, and provide hosting and delivery of a virtual classroom environment.

Calling on our firsthand knowledge of advanced technology, in learning process implementation and in content design and development, we have been able to deliver as much as 30 percent savings to clients who have moved from in-house learning operations to IBM Global Process Services.[4]

For more information

To learn more about IBM Learning Solutions, please contact your IBM representative or IBM Business Partner, or visit the following website: **ibm.com**/services/hroutsourcing

Additionally, IBM Global Financing can help you acquire the IT solutions that your business needs in the most cost-effective and strategic way possible. We'll partner with credit-qualified clients to customize an IT financing solution to suit your business goals, enable effective cash management, and improve your total cost of ownership. IBM Global Financing is your smartest choice to fund critical IT investments and propel your business forward. For more information, visit: **ibm.com**/financing

[1] Information Management and WebSphere Brands

[2] Interviews with six IBM Software Group brand education leaders

[3] IBM Training

[4] IBM internal information

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