

Building Effective Blended Learning Programs

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Introduction

The first generation of e-learning or Web-based learning programs focused on presenting physical classroom-based instructional content over the Internet. Furthermore, first-generation e-learning (digitally delivered learning) programs tended to be a repetition or compilation of online versions of classroom-based courses. The experience gained from the first-generation of e-learning, often riddled with long sequences of 'page-turner' content and point-and-click quizzes, is giving rise to the realization that a single mode of instructional delivery may not provide sufficient choices, engagement, social contact, relevance, and context needed to facilitate successful learning and performance.

In the second wave of e-learning, increasing numbers of learning designers are experimenting with blended learning models that combine various delivery modes. Anecdotal evidence indicates that blended learning not only offers more choices but also is more effective.

This article has two objectives:

1. To provide a comprehensive view of blended learning and discuss possible dimensions and ingredients (learning delivery methods) of blended learning programs.
2. To provide a model to create the appropriate blend by ensuring that each ingredient, individually and collectively, adds to a meaningful learning experience.

Badrul Khan's blended e-learning framework, referred to here as Khan's *Octagonal Framework* (see Figure 1) enables one to select appropriate ingredients (<http://BooksToRead.com/framework>). Khan's framework serves as a guide to plan, develop, deliver, manage, and evaluate blended learning programs. Organizations exploring strategies for effective learning and performance have to consider a variety of issues to ensure effective delivery of learning and thus a high return on investment.

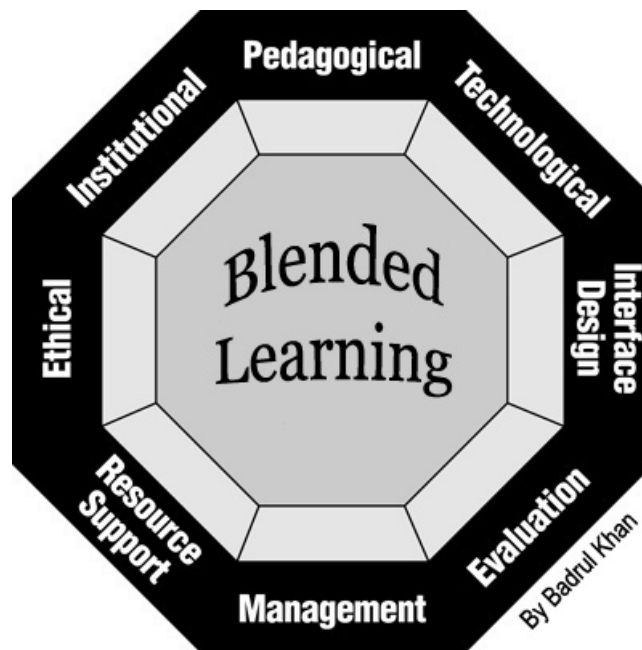


Figure 1. Khan's Octagonal Framework.

Blended Learning

Learning requirements and preferences of each learner tend to be different. Organizations must use a blend of learning approaches in their strategies to get the right content in the right format to the right people at the right time. Blended learning combines multiple delivery media that are designed to complement each other and promote learning and application-learned behavior.

Blended learning programs may include several forms

of learning tools, such as real-time virtual/ collaboration software, self-paced Web-based courses, electronic performance support systems (EPSS) embedded within the job-task environment, and knowledge management systems. Blended learning mixes various event-based activities, including face-to-face classrooms, live e-learning, and self-paced learning. This often is a mix of traditional instructor-led training, synchronous online conferencing or training, asynchronous self-paced study, and structured on-the-job training from an experienced worker or mentor.

Dimensions of the Blend

The original use of the phrase “blended learning” was often associated with simply linking traditional classroom training to e-learning activities, such as asynchronous work (typically accessed by learners outside the class at their own time and pace). However, the term has evolved to encompass a much richer set of learning strategies or “dimensions.” Today a blended learning program may combine one or more of the following dimensions, although many of these have over-lapping attributes.

Blending Offline and Online Learning

At the simplest level, a blended learning experience combines offline and online forms of learning where the online learning usually means “over the Internet or Intranet” and offline learning happens in a more traditional classroom setting. We assume that even the offline learning offerings are managed through an online learning system. An example of this type of blending may include a learning program that provides study materials and research resources over the Web, while providing instructor-led, classroom training sessions as the main medium of instruction.

Blending Self-Paced and Live, Collaborative Learning

Self-paced learning implies solitary, on-demand learning at a pace that is managed or controlled by the learner. Collaborative learning, on the other hand, implies a more dynamic communication among many learners that brings about knowledge sharing. The blending of self-paced and collaborative learning may include review of important literature on a regulatory change or new product followed by a moderated, live, online, peer-to-peer discussion of the material’s application to the learner’s job and customers.

Blending Structured and Unstructured Learning

Not all forms of learning imply a premeditated, structured, or formal learning program with organized content in specific sequence like chapters in a textbook. In fact, most learning in the workplace occurs in an unstructured form via meetings, hallway conversations, or e-mail. A blended program design may look to actively capture conversations and documents from unstructured learning events into knowledge repositories available on-demand, supporting the way knowledge-workers collaborate and work.

Blending Custom Content with Off-the-Shelf Content

Off-the-shelf content is by definition generic—unaware of an organization’s unique context and requirements. However, generic content is much less expensive to buy and frequently has higher production values than custom content. Generic self-paced content can be customized today with a blend of live experiences (classroom or online) or with content customization. Industry standards such as SCORM (Shareable Content Object Reference Model) open the door to increasingly flexible blending of off-the-shelf and custom content, improving the user experience while minimizing cost.

Blending Learning, Practice, and Performance Support

Perhaps the finest form of blended learning is to supplement learning (organized prior to beginning a new job-task) with practice (using job-task or business process simulation models) and just-in-time performance support tools that facilitate the appropriate execution of job-tasks. Cutting-edge productivity tools provide ‘workspace’ environments that package together the computer based work, collaboration, and performance support tools.

Table 1. Learning approaches and choices.

Synchronous physical formats	Instructor-led Classrooms & Lectures Hands-on Labs & Workshops Field Trips
Synchronous online formats (live e-learning)	Online Meetings Virtual Classrooms Web Seminars and Broadcasts Coaching Instant Messaging Conference Calls
Self-paced, asynchronous formats	Documents & Web Pages Web/Computer Based Training Modules Assessments/Tests & Surveys Simulations Job Aids & Electronic Performance Support Systems (EPSS) Recorded Live Events Online Learning Communities and Discussion Forums Distributed and Mobile Learning

Why Blend?

The Benefits of Blending

Blended learning is not new. However, in the past, blended learning was comprised of physical classroom formats, such as lectures, labs, books, or handouts. Today, organizations have a myriad of learning approaches and choices. Some of these are shown in Table 1.

The concept of blended learning is rooted in the idea that learning is not just a one-time event—*learning is a continuous process*. Blending provides various benefits over using any single learning delivery medium alone.

Extending the Reach

A single delivery mode inevitably limits the reach of a learning program or critical knowledge transfer in some form or fashion. For example, a physical classroom-training program limits the access to only those who can participate at a fixed time and location, whereas a virtual classroom event is inclusive of remote audiences and, when followed up with recorded knowledge objects (ability to playback a recorded live event), can extend the reach to those who could not attend at a specific time.

Optimizing Development Cost and Time

Combining different delivery modes has the potential to balance out and optimize the learning program development and deployment costs and time. A totally online, self-paced, media-rich, Web-based training content may be too expensive to produce (requiring multiple resources and skills), but combining virtual collaborative and coaching sessions with simpler self-paced materials, such as generic off-the-shelf WBT, documents, case studies, recorded e-learning events, text assignments, and PowerPoint presentations (requiring quicker turn-around time and lower skill to produce) may be just as effective or even more effective.

Evidence that Blending Works

We are so early into the evolution of blended learning that little formal research exists on how to construct the most effective blended program designs. However, research from institutions such as Stanford University and the University of Tennessee have given us valuable insight into some of the mechanisms by which blended learning is better than both traditional methods and individual forms of e-learning technology alone. This research gives us confidence that blending not only offers us the ability to be more efficient in delivering learning, but more effective.

Stanford University has over 10 years of experience with self-paced enrichment programs for gifted youth. Their problem was that only slightly more than half of their highly motivated students would complete the programs. They diagnosed the problem as a mismatch between the student's desired learning style—interactive, social, mentored learning—with the delivery technology. Their introduction of live e-learning into their program raised the completion rate up to 94% by addressing these needs. The improvement was attributed to the ability of a scheduled live event to motivate learners to complete self-paced materials on time; the availability of interaction with instructors and peers; and higher quality mentoring experiences. The Stanford research strongly suggests that linking self-paced material to live e-learning delivery could have a profound effect on overall usage and completion rates—enabling organizations to radically increase the return from their existing investments in self-paced content.

Research by the University of Tennessee's Physician's Executive MBA (PEMBA) program* for mid-career doctors has demonstrated that blended learning programs can be completed in approximately one-half the time, at less than half the cost, using a rich mix of live e-learning, self-paced instruction, and physical classroom delivery. Of even greater interest, this well-designed program was also able to demonstrate an overall 10% better learning outcome than the traditional classroom learning format—the first formal study to show significant improvements from e-learning rather than just equivalent outcomes. This exceptional outcome was attributed by PEMBA to the richness of the blended experience that included multiple forms of physical and virtual live e-learning, combined with the ability of the students to test their learning in the work context immediately and to collaborate with peers in adaptation to their unique environments.

*Effectiveness of combined delivery modalities for distance learning and resident learning; P. Dean, M. Stahl, D. Sylwester, & J. Peat; *Quarterly Review of Distance Education*, July/August 2001.

Introduction to Khan's Octagonal Framework

A variety of factors are required to be addressed to create a meaningful learning environment. Many of these factors are interrelated and interdependent. A systemic understanding of these factors can enable designers to create meaningful distributed learning environments. These factors comprise the Octagonal Framework. The framework has eight dimensions: **institutional, pedagogical, technological, interface design, evaluation, management, resource support, and ethical** (see Figure 1).

Each dimension in the framework represents a category of issues that need to be addressed. These issues help organize thinking, and ensure that the resulting learning program creates a meaningful learning experience.

Institutional

The Institutional dimension addresses issues concerning organizational, administrative, academic affairs, and student services. Personnel involved in the planning of a learning program could ask questions related to the preparedness of the organization, availability of content and infrastructure, and learners' needs. Can the organization manage offering each trainee the learning delivery mode independently as well as in a blended program? Has the needs analysis been performed in order to understand all learners' needs?

Pedagogical

The Pedagogical dimension is concerned with the combination of content that has to be delivered (content analysis), the learner needs (audience analysis), and learning objectives (goal analysis). The pedagogical dimension also encompasses the design and strategy aspect of e-learning.

This dimension addresses a scenario where all learning goals in a given program are listed and then the most appropriate delivery method is chosen. For example, if a learner is expected to demonstrate a product (in sales training), then using product simulation as part of the blend is appropriate. If a learner is expected to come up with a new price model for a product, then using a discussion as one of the elements in the blend would be an appropriate choice.

Technological

Once we have identified the delivery methods that are going to be a part of the blend, the Technology issues need to be addressed. Issues include creating a learning environment and the tools to deliver the learning program. This dimension addresses the need for the most suitable learning management system (LMS) that would manage multiple delivery types and a learning content management system (LCMS) that catalogs the actual content (online content modules) for the learning program.

Technical requirements, such as the server that supports the learning program, access to the server, bandwidth and accessibility, security, and other hardware, software, and infrastructure issues are addressed.

Interface Design

The Interface Design dimension addresses factors related to the user interface of each element in the blended learning program. One needs to ensure that the user interface supports all the elements of the blend. The interface has to be sophisticated enough to integrate the different elements of the blend. This will enable the learner to use each delivery type and switch between the different types. The usability of the user interface will need to be analyzed. Issues like content structure, navigation, graphics, and *help* also can be addressed in this dimension.

For example, in a higher education course, students may study online and then attend a lecture with the professor. The blended learning course should allow students to assimilate both the online learning and the lecture equally well.

Evaluation

The Evaluation dimension is concerned with the usability of a blended learning program. The program should have the capability to evaluate how effective a learning program has been as well as evaluating the performance of each learner. In a blended learning program, the appropriate evaluation method should be used for each delivery type.

Management

The Management dimension deals with issues related to the management of a blended learning program, such as infrastructure and logistics to manage multiple delivery types. Delivering a blended learning program is more work than delivering the entire course in one delivery type. The management dimension also addresses issues like registration and notification, and scheduling of the different elements of the blend.

Resource Support

The Resource Support dimension deals with making different types of resources (offline and online) available for learners as well as organizing them. Resource support could also be a counselor/tutor always available in person, via e-mail, or on a chat system.

Ethical

The Ethical dimension identifies the ethical issues that need to be addressed when developing a blended learning program. Issues such as equal opportunity, cultural diversity, and nationality should be addressed.

Conclusion

While learning technologies and delivery media continue to evolve and progress, one thing is certain: Organizations (corporate, government, and academic) favor blended learning models over single delivery mode programs. □

Harvey Singh is the founder of NavoWave (www.navowave.com), an e-learning and e-performance solutions company. Previously, he was Chief Technology Officer at Centra Software.