A White Paper:
Achieving Success with Blended Learning

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Introduction

What impact would it have on your organization if you could launch new products in days versus weeks? What if you could give your sales and service staffs 2-4% more time each year to work with their clients? What if you could provide management training that is more personalized and effective than what you are buying today, yet far less expensive? What if your top performers could immediately leverage their expertise across the organization without impacting their personal productivity? These are some of the benefits that early adopters of eLearning are achieving with "blended learning" strategies.

If we take the long view, traditional physical classrooms have been the dominant form of knowledge transfer for at least 3,000 years. Even today, nearly 80% of corporate training is conducted in the classroom[1]. The last universal technology in learning, the printed book, is over 500 years old. Yet in the past 10 years alone, over 10 major new technologies for learning and collaboration have been introduced. Early experience with these technologies has uncovered opportunities for profound improvements in quality, effectiveness, convenience and cost of learning experiences. Only now are we beginning to understand how learning experiences will evolve to exploit "blended" combinations of both traditional and technology-based learning methods, and how blended learning can have a strategic impact on critical business processes.

Organizations today are looking beyond the automation of traditional training models to new approaches to knowledge transfer and performance support that are better aligned with business goals and deliver measurable results. By focusing on the specific business objective, rather than the learning technology, we are given the opportunity to fundamentally re-think how we design and deliver learning programs. This re-thinking also allows us to break free from the concept of a "course" and consider approaches that provide a continuous learning process with active participation by the entire organization in sharing, teaching and mentoring mission-critical knowledge.

This white paper shares cutting-edge research and thinking on Blended Learning as it explores: What is blended learning? Why blend? How do you blend? Where does one start?

What is Blended Learning?

Simply put, Blended Learning can be described as a learning program where more than one delivery mode is being used with the objective of optimizing the learning outcome and cost of program delivery. However, it is not the mixing and matching of different learning delivery modes by itself that is of significance, but the focus on the learning and business outcome. Therefore we propose to refine this definition to say:

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[1] *2001 ASTD State of the Industry Report*, American Society for Training & Development, March 2001

Blended learning focuses on optimizing achievement of learning objectives by applying the "right" learning technologies to match the "right" personal learning style to transfer the "right" skills to the "right" person at the "right" time.

Embedded in this definition are the following principles:
- We are focusing on the learning objective rather than the method of delivery
- Many different personal learning styles need to be supported to reach broad audiences
- Each of us brings different knowledge into the learning experience
- In many cases, the most effective learning strategy is "just-what-I-need, just-in-time"

The experience of pioneers in blended learning shows that putting these principles into practice can result in radical improvements in the effectiveness, reach and cost-effectiveness of learning programs relative to traditional approaches. These improvements are so profound that they have the potential to change the overall competitiveness of entire organizations. Before we share some of this research, let us look at some of the "dimensions of the blend."

Dimensions of the Blend

The original use of the phrase "Blended Learning" was often associated with simply linking traditional classroom training to eLearning activities. However, the term has evolved to encompass a much richer set of learning strategy "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 leaning 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 pre-meditated, structured or formal learning program with organized content in specific sequence like chapters in a text book. In fact, most learning in the workplace occurs in an unstructured form such as meetings, hallway conversations, and e-mail. A blended program design may look to capture active 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 your organization's unique context and requirements. However, generic content is much less expensive to buy and frequently has higher production values than custom content you build yourself. Generic, self-paced content can be customized today with a blend of live experiences (classroom or online) or through content customization. Industry standards such as SCORM (Shareable Courseware Object Reference Model) open the door to greater flexibility in blending off-the-shelf and custom content – improving the user experience while minimizing cost.

Blending Work and Learning

Ultimately, the true success and effectiveness of learning in organizations is believed to be associated with the paradigm where work (such as business applications) and learning are inseparable, and where learning is embedded in business processes such as hiring, sales, or product development. Work becomes a source of learning content to be shared and more learning content becomes accessible on-demand and in the context of the user's workplace need.

What should be evident from the above discussion is that many of the implicit constraints of time, geography and format that we accepted with the physical classroom are no longer valid. Even the fundamental organizing construct of a "course" can be transformed into an ongoing learning process or experience.

Ingredients of the Blend

Blended learning is not new. However, in the past, the ingredients for blended learning were limited to physical classroom formats (lectures, labs, etc.), books or handouts. Today organizations have myriad learning approaches to choose from, including but not limited to:

Synchronous physical formats:
- Instructor-led Classrooms & Lectures
- Hands-on Labs & Workshops
- Field Trips

Synchronous online formats (Live eLearning):
- eMeetings
- Virtual Classrooms
- Web Seminars and Broadcasts
- Coaching
- Instant Messaging

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

Blended Learning – A "Real-World" Example

These concepts may be best visualized by contrasting a traditional, single-mode, lecture-style classroom program with a program that applies blended learning principles. Let's use a new employee orientation program as an example.

The traditional approach may typically involve a two to three week classroom-training course where all the new employees are introduced to company products, philosophy, vision, etc. This classroom-training course usually takes place in a contiguous block of time before a new employee is introduced to the actual work and performance expectations are set.

In contrast, a Blended Collaborative eLearning program (carried out over a longer span of time) can help balance learning and performance by creating a recipe that includes:

- Interactive online opportunities *before the employee starts work* to introduce them to learning resources and their team, and enable them to be better prepared for success
- A physical classroom kick-off event for acculturation and teambuilding
- A series of self-paced, online tutorials covering the company's product or service
- An asynchronous, online discussion forum created to allow participants to share customer case studies or scenarios
- A series of live, collaborative coaching sessions where the new employees talk with members of the management team
- An online, Web-based post-test that certifies the competency of new employees
- An online survey that allows participants to provide their feedback about the learning program for future improvements

Beyond the short initial kickoff session, the remainder of these events take place in the employee's work context over an extended period of time – minimizing the employee's time-to-productivity while fostering internalization and application of key learning in the job context.

The "Right" Ingredients of a Blended Program

Creating a blended learning strategy is an evolutionary process. You will need to explore the capabilities of your team, your organization's infrastructure, and your learners' receptiveness to new learning formats. For many, the first stage in their blended learning program initiative is to supplement their current programs, either traditional classroom or self-paced content libraries, with live eLearning activities (coaching, virtual classrooms or workshops) to extend the learning process and better integrate it with the work environment.

Once you have built experience and confidence using the key tools available to you, it is appropriate to invest more effort in a thorough redesign of your learning programs for maximum business impact. Here is a high-level process that can guide you through some of the key decisions in this program design:

Every learning initiative should start with clarity on the program's business and performance objectives. What should the participant or learner be able to do upon completion of the learning program to advance your business? With that goal in mind, you need to perform an instructional design analysis, but with some new twists reflecting the broader range of design options available to you.

Audience analysis is essential to determine which delivery options will be effective in achieving your performance objective. This analysis needs to consider several key factors, including but not limited to the following:

- Base knowledge – how uniform is the knowledge that they are bringing to the learning program?
- Preferred learning styles – while learning styles do vary by individual, different communities frequently share learning style preferences. Business users and sales professionals tend to respond best to learning formats that are collaborative, visual, verbal and non-linear. IT staff are generally more comfortable with formats that are linear, factual, tactile and individual. What range of styles will you need to support?
- Location – is the audience centralized or distributed?
- Motivation – what is the level of effort, inconvenience or cost they are willing to incur in order to obtain the learning you are offering?
- Access – which elements of the program does the audience view as a base competency to be achieved in advance of need versus a resource to be accessed on demand

Content analysis will often guide you in the selection of the optimal delivery formats. You will have the most options with simple knowledge transfer programs, but should consider the impact on retention when adding interaction with both the audience and content. You now have options not available in most classrooms for access to diverse content and tools such as bi-directional application sharing, games and simulations. Some forms of content – e.g. intense behavioral modification, complex physical skills – might only be effectively delivered in face-to-face formats. It is also important to understand how dynamic the content in your program is. Launching a new product will generally result in a rapid evolution of content as input from the field and customers is captured and integrated. Programs with this content behavior generally need to remain in a live format to facilitate continuous content evolution and refinement.

Financial analysis of both your content development and delivery costs could play a significant role in deciding the delivery options. The primary financial advantage of self-paced content is its low delivery cost relative to live formats. However, producing a highly interactive and media rich self-paced training program may cost many thousands of dollars per hour of delivered content, and several weeks of development time. Content from traditional classrooms or live eLearning can be quickly and inexpensively developed. Studies have shown that, despite its higher delivery costs, live learning formats are generally more cost effective unless you have stable content to be delivered to audiences of several thousand or more.

Infrastructure may constrain your delivery options. Classroom capacity is frequently a constraint on the speed with which you can train a community. Mobile devices have different screen sizes and network access than PCs. Unless you are very fortunate, you will generally not have sufficient network bandwidth available for full-motion video. Luckily, the most popular eLearning technologies such as WBT and live eLearning are generally compatible with existing infrastructure since they can operate over very low-bandwidth network connections.

The appendix to this white paper is a Blended Learning Strategy Guide – this tool is designed to guide you in applying all of this thinking to your particular learning initiative.

Why Blend? The Benefits of Blending

The concept of Blended Learning is rooted in the idea that learning is not just a one-time event – but that learning is a *continuous process*. Blending provides various benefits over using any single learning delivery type alone:

Improved Learning Effectiveness

Recent studies at the University of Tennessee and Stanford give us evidence that a blended learning strategy actually improves learning outcomes by providing a better match between how a learner wants to learn and the learning program that is offered.

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 access to only those who can participate at a fixed time and location, whereas a virtual classroom event is inclusive of a remote audience, 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 cost and time. A hundred percent online, self-paced, media-rich, Web-based training content may be too expensive to produce (requiring multiple resources and skills), but combining virtual collaborative learning forums and coaching sessions with simpler self-paced materials such as generic off-the-shelf WBT, documents, case studies, recorded live eLearning events, text assignments, and PowerPoint presentations (requiring quicker turn-around time and lower skill to produce), may be just as effective or more effective.

Optimizing Business Results

Organizations report exceptional results from their initial blended learning initiatives. Learning objectives can be obtained in 50 % less class time than traditional strategies. Travel costs and time have been reduced by up to 85%. Acceleration of mission-critical knowledge to channels and customers can have a profound impact on the organization's top line.

Evidence That Blending Works

We are early into the evolution of blended learning. 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 has given us valuable insight into some of the mechanisms by which blended learning is better than both traditional methods and individual forms of eLearning technology alone. This research gives us confidence that blending not only offers us the ability to be more efficient in delivering learning, but also more effective.

Stanford University has over 10 years of experience with self-paced enrichment programs for gifted youth. Their problem, however, was that only slightly more than half of their highly motivated students would actually complete their programs. They diagnosed the issue as a mismatch between the student's desired learning style – interactive, social, mentored learning – with the program's delivery format. The introduction of live eLearning into their program to address these needs raised student completion rates to 94%. 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 eLearning delivery could have a profound effect on overall usage and completion rates – enabling organizations to radically increase the return on their existing investments in self-paced content.

Research by the University of Tennessee's Physician's Executive MBA (PEMBA) program[2] for mid-career doctors has demonstrated that blended learning programs can be completed in approximately one half of the time and at less than half of the cost using a rich mix of live eLearning, self-paced and physical classroom delivery. Of even greater interest, this well-designed program was able to demonstrate an overall 10% better learning outcome than using the traditional classroom learning format alone. This represents the first formal study to show significant improvements from eLearning rather than just equivalent outcomes. This exceptional result was attributed by PEMBA to the richness of the blended experience that included multiple forms of physical and virtual live eLearning, combined with the ability of the students to test their learning in the work context immediately and collaborate with peers on its adaptation to their unique environments.

Taken together, these studies show us that, regardless of whether your starting point is the traditional classroom or self-paced eLearning, the diversity of a blending learning experience appears to have a significant impact on the overall effectiveness of a learning program relative to any individual learning delivery method alone. But how do you bring some of these benefits to your organization?

How Do You Get Started with Blended Learning?

You need to approach blended learning as a journey rather than a destination. The first steps along the journey are to build experience with the individual foundations of any blended learning strategy – self-paced learning content and live eLearning – to understand their strengths and weaknesses in your business context. The good news is that this first step has consistently demonstrated quick financial paybacks and strong user acceptance.

The next step is to begin experimenting with the "dimensions of the blend" discussed in this paper. Use the guide to help you focus your design. You may find it useful to implement learning content management capabilities that enable you to link together self-paced content and live learning activities into managed blended learning programs. When you select your first blended learning project you should approach it as you would any significant organizational change by insuring the following project criteria can be met:

- Clear, High Value, Business Justification Case – to achieve executive sponsorship
- Executive Sponsorship – to provide the resources and management support required
- Committed Project Team – to execute project regardless of obstacles
- Change Management Strategy – to anticipate and overcome resistance to change
- Responsive Vendors – to provide resources and expertise for your success
- A Deadline – to maintain focus and commitment

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[2] *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

Conclusion

Organizations are rapidly discovering that blended learning is not only more time and cost effective, but provides a more natural way to learn and work. Organizations that are in the forefront of this next generation of learning will have more productive staffs, be more agile in implementing change, and be more successful in achieving their goals. To paraphrase Jack Welch, legendary chairman of General Electric, the ability of an organization to learn, and rapidly convert that learning into action, is the ultimate source of competitive advantage. Organizations must look beyond the traditional boundaries of classroom instruction by augmenting their current best practices with new advances in learning and collaboration technologies to maximize results. More importantly, organizations must seek to empower every individual in the organization to become an active participant in the learning and collaboration process.

We encourage you to practice blended learning in your organization. The following Appendix to this white paper provides a guide to thinking through the major dimensions of a blended learning strategy. If you'd like to learn more about blended learning and available technologies, please visit our Website at www.centra.com.

About the Authors

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Before joining the Centra management team, Harvi Singh co-founded MindLever, a leading developer of learning content management systems in Raleigh, North Carolina, which Centra acquired in May 2001. Singh has more than 10 years experience in technology-based learning and was an early proponent of an integrated, standards-based approach to enterprise learning. He has been involved in the Apple Classroom of Tomorrow research labs, produced and directed over 100 multimedia and Internet training products, and consulted with major organizations such as Microsoft, Oracle, Sun Microsystems, Harvard Business School, and the Department of Defense on their eLearning initiatives. As a recognized thought leader in eLearning, Singh actively serves on standards committees, including the IMS and SCORM initiatives.

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Chris Reed has been part of the Centra management team since 1998 and often represents the company at learning and investment forums, discussing how eLearning can create business value. Reed brings over 20 years of senior marketing, consulting, and sales experience to Centra in established and venture-backed high technology firms and consultancies. Prior to Centra, he served as Director of Market Development for Lotus Notes where he led the re-positioning, product and solutions marketing programs, and channel initiatives characterized by the high technology strategist Geoffrey Moore as "one of the most extraordinary marketing achievements in recent years."

Appendix – Blended Learning Strategy Guide

The following tables are a guide for identifying what general types of learning delivery formats meet the different needs and constraints your organization may face. In the majority of cases, you will find that no single delivery mode is optimal, but this should give you a good sense of the relative balance of formats that will best fit your audience. The analysis has two phases: identification of the weighting of focus between live and self-paced delivery models, and then a further mapping to the most appropriate delivery formats within each of these models.

Step 1: Delivery Model Mapping

Plot your answer on this scale

The audience learns best with a collaborative, non-linear format	←————————————→	The audience learns best with a sequential, independent format
The audience motivation is variable or weak	←————————————→	The audience highly motivated to learn
Content is complex or requires interaction	←————————————→	Content is basic – can be taught by describing
Attitudes or behavior need to be changed	←————————————→	Attitudes or behavior do **not** need to be changed
Complex physical skills need to be taught	←————————————→	Complex physical skills do **not** need to be taught
Would learners benefit from team interaction or collaboration?	←————————————→	Individual practice and drill is effective
Content must be developed quickly and at low cost	←————————————→	Resources and time are available for content development
Content must be updated frequently	←————————————→	Content is stable for 1 year or more
Target audience for content is < 3000	←————————————→	Target audience for content is > 3000, or content is off-the-shelf

Consolidate your answers below*

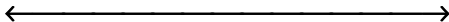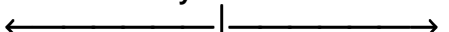**Live Formats**   ←——|————————|——→   **Self-Paced Formats**

* Represents the consolidated results as a distribution on the line rather than a point – unless your results fall uniformly at one end of the spectrum, you are likely to benefit from a blended design

Step 2a: Delivery Technology Mapping – Live Formats

Plot your answer on this scale

Learners have the same base knowledge	← ———————————— →	Learners have different base knowledge
Learners are in a central location	← ———————————— →	Learners are distributed or mobile
Learning program has stable learner throughput	← ———————————— →	Many learners must be trained in a short time
Learning is most effectively delivered in a single session	← ———————————— →	Learning is most effectively delivered over time, or interleaved with job experience
Learners have schedule flexibility to attend class	← ———————————— →	Classes must adapt to learner schedules
High resistance to attitude or behavioral change	← ———————————— →	Low resistance to attitude or behavioral change
Complex physical skills need to be taught	← ———————————— →	Complex physical skills do **not** need to be taught
Remote expert or peer access **not** important	← ———————————— →	Remote expert or peer access important
Learner convenience is **not** important	← ———————————— →	Learning convenience is important – time in training, cost of travel
Availability of learning outside class not important	← ———————————— →	Self-paced viewing or reuse of live class content valuable
Learners do not have access to PCs	← ———————————— →	Learners have access to a PC with at least dial-up connectivity

Consolidate your answers below*

Physical Classroom ← ——————|—————— → **Live eLearning**

* The weighting of the distribution will be a guide on the likely optimal mix of physical and virtual classroom delivery

Step 2b: Delivery Technology Mapping – Self-Paced Formats

Plot your answer on this scale

Learners

Subject matter requires a complex, pre-requisite skills/knowledge set to be acquired before its application	←———————————————→	Subject Matter/content does not need to be accessed in a structured path, content may be accessed in chunks on a as needed basis

Subject matter requires a complex, pre-requisite skills/knowledge set to be acquired before its application

←——————————————————————————→

Subject Matter/content does not need to be accessed in a structured path, content may be accessed in chunks on a as needed basis

Content needs to be presented independent of the actual work situation

←——————————————————————————→

Content needs to linked to a business process, software application, or job-task

Access to online content is not available during job task/performance

←——————————————————————————→

Online content is readily accessible during the job task performance

Instructional Designers are available to map out the course content with media, interactive elements around course objectives

←——————————————————————————→

Content is available in job-aids and document format created by Subject Matter Experts (non-instructional designers and Web content designers)

Learners are motivated to complete structured course content in an online/Web based format

←——————————————————————————→

Learners are unlikely to complete full length online courses and need just-in-time information

Adequate time is available to master the content in a structured format before skill/knowledge application

←——————————————————————————→

Content needs to be made available without lead time to master the content prior to job task performance

Learners do have the opportunity to schedule concentrated/dedicated time to learn on-line

←——————————————————————————→

Learners must remain on the job and may have bursts of time available for content access and reference

Assessment and completion or tracking is necessary component of training

←——————————————————————————→

Content needs to be access more for reference than for compliance or assessment

Consolidate your answers below*

Self-paced Courses   ←————————|————————→   **On-demand/EPSS**