



Hands-On and Collaboration Workshops

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An Innovative Blended Learning Enhancement to Improve
Skill Levels Achieved from Online Learning

Gregory L. Adams, P, Eng.



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Definitions



e-LEARNING – Training courses delivered online, on-demand via the internet. Sometimes called Web-Based Training (WBT).

BLENDED LEARNING – Training provided by combining different modalities, such as interactive e-Learning, video demonstrations, and live instructor-led training (ILT)— both in the classroom and virtually online. The goal of blended learning is to maximize the training benefits of each modality.

This paper describes a modern blended learning approach to improve and enhance the results that would not otherwise be achieved by e-Learning alone. In particular:

- **Significantly improve completion rates** for e-Learning courses.
- **Provide opportunities for group collaboration** that cannot otherwise be done by the individual doing e-Learning only.
- **Enhance practical programming and system administration skills** by improving the reach and depth of hands-on exercises beyond those typically provided during technical e-Learning.
- **Overall, enhance the practical skills of students** — practical skills that are truly necessary for them to do their job.
- **Increase the enjoyment and likelihood of success** for the participant's learning journey.

Introduction

According to e-Learning.com, the total e-Learning and machine learning training market worldwide in 2017 was about \$50B with approximately \$10B of that for Information Technology (IT). The discussion herein is with regards to IT training, although it might apply in a similar way to cyber security, leadership, communications and management.

e-Learning for IT is widespread and popular with a very compelling value proposition. However, some people might argue e-Learning is not as good as live instructor-led events, the simple fact remains that organizations have made significant investments in e-Learning and are having a level of success with this modality. The return on investment generally appears good, and hence, e-Learning continues to show ongoing growth and popularity.

Still, there are some limitations. Savvy training managers are always looking to improve the results. Their goal is to maximize the skills achieved by those taking the training, especially practical skills. Practical skills are what is critical for IT professionals to do their jobs. **83% of CIOs surveyed¹ indicated that workforce competency is the leading factor for an organization to reach its project goals** — more than the technology used, or the processes followed.

The e-Learning experience can be enhanced by offering *Hands-On and Collaboration Workshops* as part of a blended learning program. These workshops allow trainees to perfect their all-important practical skills and immediately apply them back in the office.

e-Learning Value Proposition

All the IT training your organization needs for a low-cost, per-person monthly subscription.

¹ <http://onlinelibrary.wiley.com/doi/10.1111/irel.12066/full>



Improving Low Completion Rates

According to surveys of Massive Open Online Courses (MOOCs), completion rates are typically less than 15%.² This is understandable in large populations because many people register just to check it out without intention of actually finishing. The survey goes on to indicate that the percentage completion for smaller groups would be higher, perhaps reaching 40%. Unfortunately, 40% would still be disappointing for most corporate and government training programs.

One of the reasons for low completion rates in professional organizations is procrastination. Since e-Learning is available on-demand, seven days per week, 24 hours per day, it is easy for busy employees to delay taking a subscription e-Learning course, even if they are aware that the training will be helpful to them. They know they can always start at a later time, ostensibly when they don't have so much work on their plate.

Some organizations report that after a three month availability period, full completion was only between 17% and 25% with approximately 50% never logging onto the system during that timeframe.

MOOC COMPLETION RATES	
Large Populations	< 15%
Small Populations	< 40%

REPORTED CORPORATE COMPLETED RATES	
Full Completion	17% - 25%
Partial Completion	25% - 33%
Not Attempted	- 50%

² <http://www.katyjordan.com/MOOCproject.html>

Some training managers have attempted to rectify the situation by better administrative monitoring of the student body, but that takes time and effort and has the side effect of creating a negative atmosphere around the training program.

A much more effective and pleasant approach is to create a "sense of urgency" by offering live, pre-scheduled events. The more desirable these events are, the more likely participants will complete their e-Learning in time because they don't want to miss out.

Techniques that can be used are:

Coaching

Pre-scheduled coaching by a subject matter expert (SME) can be very effective. Students have an opportunity to ask questions and share their work with other participants. Very worthwhile.

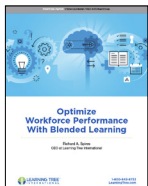
Blended Learning

Even better are events that have an enhanced training component done in a different modality. This would include such things as instructor-led advanced lectures, facilitated group collaboration, or hands-on workshops to help build practical skills. This solution has been recognized in the industry with companies such as Microsoft and Learning Tree International now offering live, instructor-led, hands-on and collaboration workshops as part of their blended learning programs.

Blended Learning Benefits

Blended learning has been shown to make a learning journey much more enjoyable, not to mention it is significantly more effective because it leverages the best aspects of each modality.

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with Blended Learning

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Completing Topics Students Cannot Do On Their Own

Online e-Learning is essentially a singular endeavor that individuals do by themselves. Unfortunately, there are many topics that require group or partner interaction to understand the concepts. Soft skills such as effective presentations and communication fall into this category, as do software design or agile project management.

Although online e-Learning and videos can be used to obtain “knowledge” about the techniques of these disciplines, the simple fact is you’ll never be an excellent presenter or great communicator without some practice, nominally in front of a group of individuals also striving to achieve the same goals. Similarly, without feedback from other class team members, it would be nearly impossible to know if your software designs are as good as they should be or how they can be improved.

Some e-Learning vendors attempt to mitigate the on-my-own nature of online courses by setting up online forums and chat rooms. Given the on-demand aspect of e-Learning, students are often at different places at different times making forums and chat less effective — not a substitute for real-time, face-to-face group collaboration.

Instructor-Led Active Learning Courses

Typically live, instructor-led training that requires collaboration spend 40% or more of the classroom time in groups of 4 or 5.

After a lecture period, each team goes to a separate area or virtual breakout room and discuss how to implement what they have just learned. These discussions combined with instructor feedback progressively evolves a much higher level of retention, better than an individual is likely to do on their own.

This style of facilitated training is known as Active Learning.

Retention and Modality

According to the National Training Laboratories in Bethel, Maine, and confirmed by numerous other scholarly studies (see Wikipedia), retention is highly dependent on the learning modality. Retention ranges as shown below are typical.

MODALITY	RETENTION
Lecture	5%
Reading	10%
Audio Visual	20%
Live Demonstration	30%
Group Discussion	50%
Practice by Doing	75%
Teaching Others	90%

PASSIVE LEARNING ACTIVE LEARNING

Modes typically available and used for online e-Learning classes

modes also used in live instructor led. Active Learning classes with group collaboration and hands-on labs

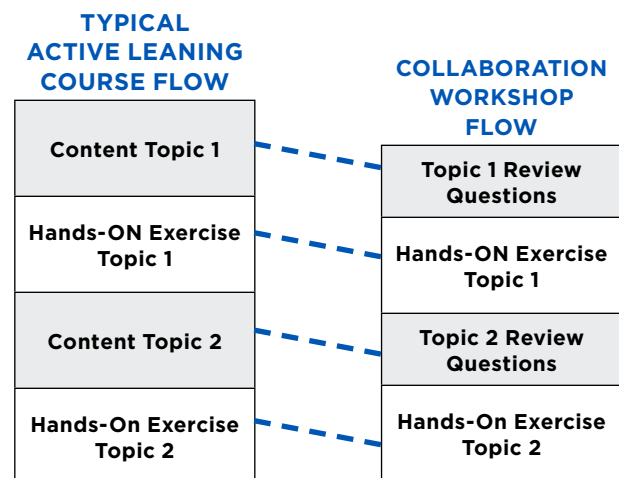
During a traditional instructor-led active learning collaboration course, the time given to group activities is typically about 40%. Hence, a four-day course would have approximately 1.5 to 2 days spent in group discussion. That small investment in time increases retention around 2.5 times. This is probably why participants so often indicate that the “exercises” were their favorite part of their training.

This is not to diminish e-Learning; it serves to provide initial understanding in a very convenient format. Retention can be enhanced by adding blended learning in the form of hands-on or collaboration workshops. Collaboration workshops focus on group discussions, while hands-on workshops provide practice-by-doing exercises, both with a minimal amount of time spent doing passive content since it will already have been conveniently provided by online learning.

Collaboration Workshops

An instructor-led collaboration workshop maximizes group participation and practice-by-doing. Nominally, 80% or more of the time will be spent in active learning teams. Assuming that fundamental knowledge has or is being obtained using e-Learning, the only “lecture” takes for form of topic review and group facilitation.

A key factor for a successful collaboration workshop is that it preserves the flow and progressive nature of the parent course — the course for which the exercises were originally written. The progressive nature of these exercises is central to the successful building of practical skills. The group activities of a 4- or 5-day full course can be completed in a 2-day collaboration workshop — mandatory prerequisite is completion of the matching e-Learning course.



Collaboration Workshop Implementation

There are two different approaches to the implementation of collaboration workshops for blended learning: follow-on and interleaved. **Follow-On** anticipates that an entire e-Learning course is completed before the execution of a single collaboration workshop. During the single workshop, all of the practical exercises are done. **Interleaved** implies that only a single e-Learning module is completed, and then an instructor-facilitated session is scheduled with only one matching group exercise.

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
APRIL	2 - 2 hr. c/w T1	3	4	5	6
	9	10	11 - 3 hr. c/w T2	12	13
	16	17	18	19 - 3 hr. c/w T3	20
	23	24	25	26 - 2 hr. c/w T4	

Interleaved Collaboration Workshops

Interleaved workshops would typically have a schedule something like the forgoing. The major advantage of this approach is that it allows students to ask questions of the instructor and clear up misunderstandings incrementally as they progress. However, it also requires that they reconnect and review at the start of each session.

Unfortunately, this style would seem to skew the on-demand aspect of e-Learning, and if students don't complete one e-Learning module in time, they might tend to skip the workshop session — after all, it is just a small piece isn't it? I.e. the “sense of urgency” for one session just doesn't seem as compelling or desirable as something more significant like follow-on workshops.

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
APRIL	2	3	4	5	6
	9	10	11	12	13
	16	17	18	19	20
	23	24	25	26 - C/W Day 1	27 - C/W Day 2

Follow-On Collaboration Workshops

Follow-on collaboration workshops are much easier to coordinate and schedule — and they maximize the “sense of urgency.” This is the one time participants can attend, and when they do, they can put their collective heads down and do the full program all at once. Usually this yields close to 100% attendance. It also gives more flexibility for the participant in when they will complete their e-Learning course.

One of the best aspects of follow-on is that it tends to identify holes in participant's knowledge which the instructor can fill in before active group exercises. Also, there is no lost time due to the reconnection aspect of the interleaved approach.

Pre-Workshop Instructor Coaching

To answer questions and clear up misunderstandings incrementally (as it does in Interleaved), pre-workshop one-on-one instructor coaching can be provided. Often e-Learning vendors provide “office hours” for chat rooms or call-up coaching, but if not, this service can be delivered through the workshop provider.





Achieving Higher Levels of Practical Programming Skills

As previously mentioned, e-Learning courses are best for single-person participation. **For many disciplines such as computer programming, system administration or cyber security, it would seem perfectly viable to have matching hands-on exercises to help achieve retention at the 75% level, rather than just the 20% passive level (as discussed previously).** Unfortunately, this is not always the case.

A significant number of participants, even those who complete their e-Learning courses, will often skip some hands-on exercises or not do them at all. There seems to be quite a few different reasons for this. **The ones related to us include:**

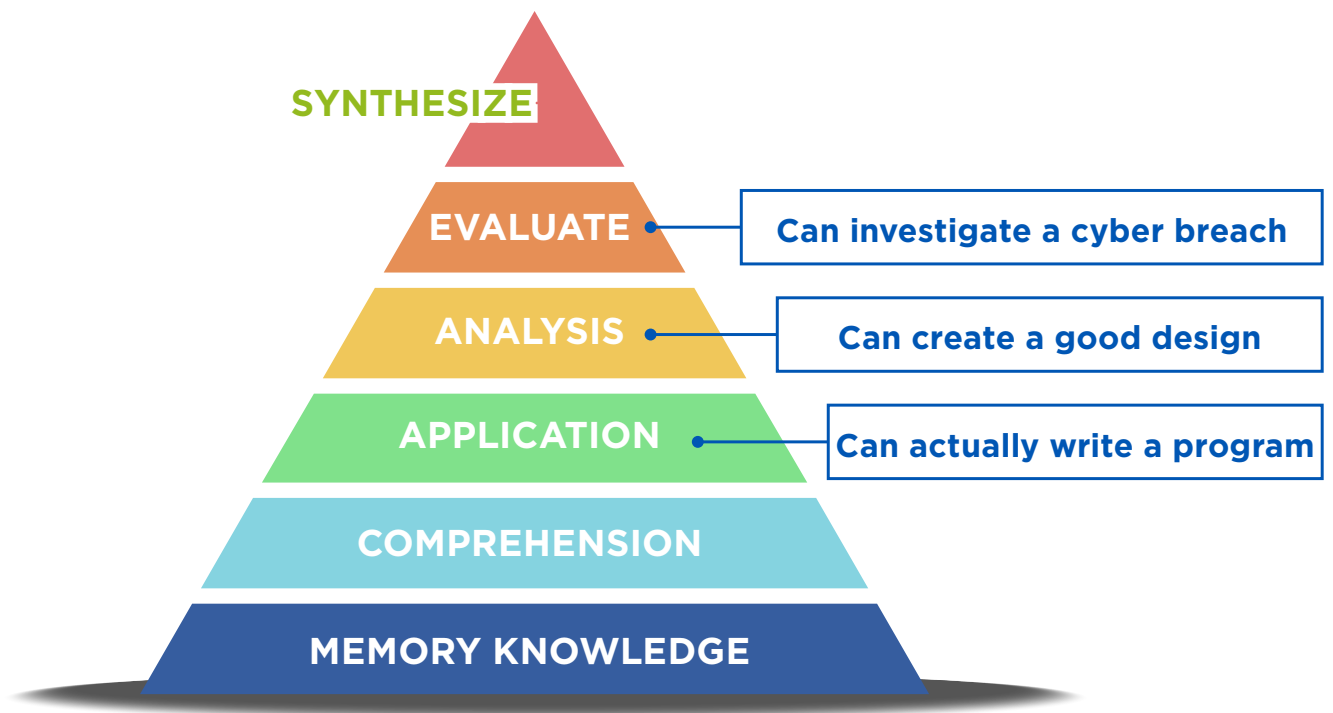
"I did not have time" or "the labs take too long"

"I learned all I wanted to during the lecture session and didn't think the hands-on exercises would add any value"

"I got stuck on an early exercise step and gave up – there was nobody who could help me and only the final answer was available" (this can be mitigated using pre-workshop coaching)"

"I didn't have a real development environment – the e-Learning provider used look-alike tools that did not have the features I needed in order to make my program run"

"The e-Learning provider required that I set up my own development environment which takes way more time than the exercise itself" — this seems especially true for configuration intensive topics such as database administration such as SQL Server or SharePoint."



For these reasons, it is believed that a participant does not always complete all hands-on exercises during an e-Learning course - yet practical exercises are the only way to achieve skills above the Comprehension level as indicated in Bloom's Taxonomy.

For a person to truly be able to do the tasks necessary for their job, they need to reach Application level or above. Collaboration workshops can help achieve the higher levels using facilitated group discussion. For computer programming, cybersecurity or similar, a Hands-On Workshop can be used.

Hands-On Workshops

Hands-On Workshops are very similar to Collaboration Workshops except that they offer pragmatic technical hands-on, practice-by-doing exercises, as opposed to small group collaboration. **Like collaboration workshops, hands-on workshops are instructor-led, can be interleaved or follow-on, and maximize the time doing practical tasks such as programming or system administration at about 80%.**

Hands-On and Collaboration Workshops

They are even more effective at achieving higher retention levels, while helping to improve practical skills at the same time.

In addition, hands-on workshops mitigate many of the reasons participants are not able to complete the hands-on exercises of an e-Learning course. **In particular, they need to be:**

- **Instructor-led** so they have someone to ask and won't get stuck at some early partial step
- **Pre-configured Virtual Machines (VMs)** with real-world software development and configuration tools the same as they will be using in their jobs

Hands-on workshops are also useful for someone who just wants additional exercises to improve their practical skills — the exercises of a hands-on workshop offer a different set of problems for the student to solve.



Blended Learning from Learning Tree

Learning Tree has been providing quality training, coaching, and workforce enhancement services for nearly 40+ years, which means you benefit new and proven learning techniques from around the globe. Our instructor corps of 600+ practitioners cover virtually all IT and cybersecurity disciplines. A key aspect is that all instructors actually work in their field of expertise and have real-world experience in their subject areas — experience you can leverage immediately.

Background and Services

In addition to world-class training courses, Learning Tree also provides numerous services that augment our course offering including skills assessment, baseline skills profiling, competency modeling, direct project support and acceleration workshops. Blended learning including hands-on and collaboration workshops further improve our service and training offerings. **Over 2.5 million professionals have enhanced their skills through Learning Tree’s extensive course library.**

Blended Learning Programs

Learning Tree is committed to providing the very best learning experience available so that organizations can develop world-class competency in their workforces. Blended learning programs, including Hands-On and Collaboration Workshops, are key to achieving this goal. We have been delivering blended learning programs, including hands-on and collaboration workshops for with great success. *See Learning Tree CEO Richard Spires’ [blended learning](#) paper for more information.*

One organization has implemented full blended learning curricula, using vendors such as ITProTV.com for their e-Learning content and Learning Tree for Hands-On and Collaboration Workshops. Both interleaved and follow-on styles have been employed. This has produced one of the most effective training programs we have ever had the privilege to be involved in.

Learning Tree can provide Hands-On or Collaboration Workshops for essentially any course or topic you are considering as part of your organization's team training, either onsite at your location or virtually via our award-winning AnyWare® technology. Many of these workshops are also being made available as scheduled as public offerings.

All Hands-On and Collaboration workshops offered by Learning Tree include:

- **Self-assessment** to help determine which workshop is best suited to the participant's needs.
- **Post-assessment** to evaluate the return on training investment.
- **Hands-On exercises** done on cloud-hosted Virtual Machines with up-to-date real-world development tools. Most are available in our Sandbox for 90 days after the workshop ends.
- **Progressive exercise suites** that incrementally become more challenging to maximize the practical skills gained.
- **AdaptaLearn** allows participants to tailor their experience to their specific personal backgrounds and desires.
- **For remote attendees, the highly interactive AnyWare environment** with full presentation and sharing features ideal for online real-time group collaboration.
- **Facilitation by an SME instructor** with real-world experience in their topic areas.

- **Access to the same instructor for additional coaching** or advice after your workshop ends.

Learning Tree offers many other Blended Learning offerings to further improve the learning journey. Some of these include:

- **After-course assignments with follow-up coaching** to allow further development of practical skills after the workshop has ended.
- **Acceleration workshops** to assist with a team's specific real work projects.
- **Capstone project development** to support as-real-as-it-gets ongoing professional development with real work colleagues in the real office setting.

If you are interested in Blended Learning, Hands-On or Collaboration Workshops, or any of our workforce development solutions please contact us at **1-800-THE-TREE (843-8733)** or visit LearningTree.ca.

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About the Author



Gregory L. Adams, P. Eng.
*Senior Consultant,
President & CEO of ISDI,
Learning Tree Instructor & Author*

Greg has been in the IT field for more than 35 years, with extensive experience both in the government and private industry. His areas of expertise include Software Engineering, Object Oriented Programming, Advanced Software Design, Agile/Scrum Transformation, IT Competency Modeling, and Web and Mobile Device Security.

- Has undertaken numerous projects including those in approximately 50 of the fortune 500 companies
- President and CEO of ISDI – a consulting company dedicated to excellence in software design and development
- Previously served as Learning Tree Chief Operating Officer and Chief Strategy Officer

Acknowledgements

The author would like to acknowledge Laura Bates, Training Manager at the Mayo Clinic for her collaboration and contributions to Blended Learning Hands-On Workshops. Her insights have been inspirational and are very much appreciated.