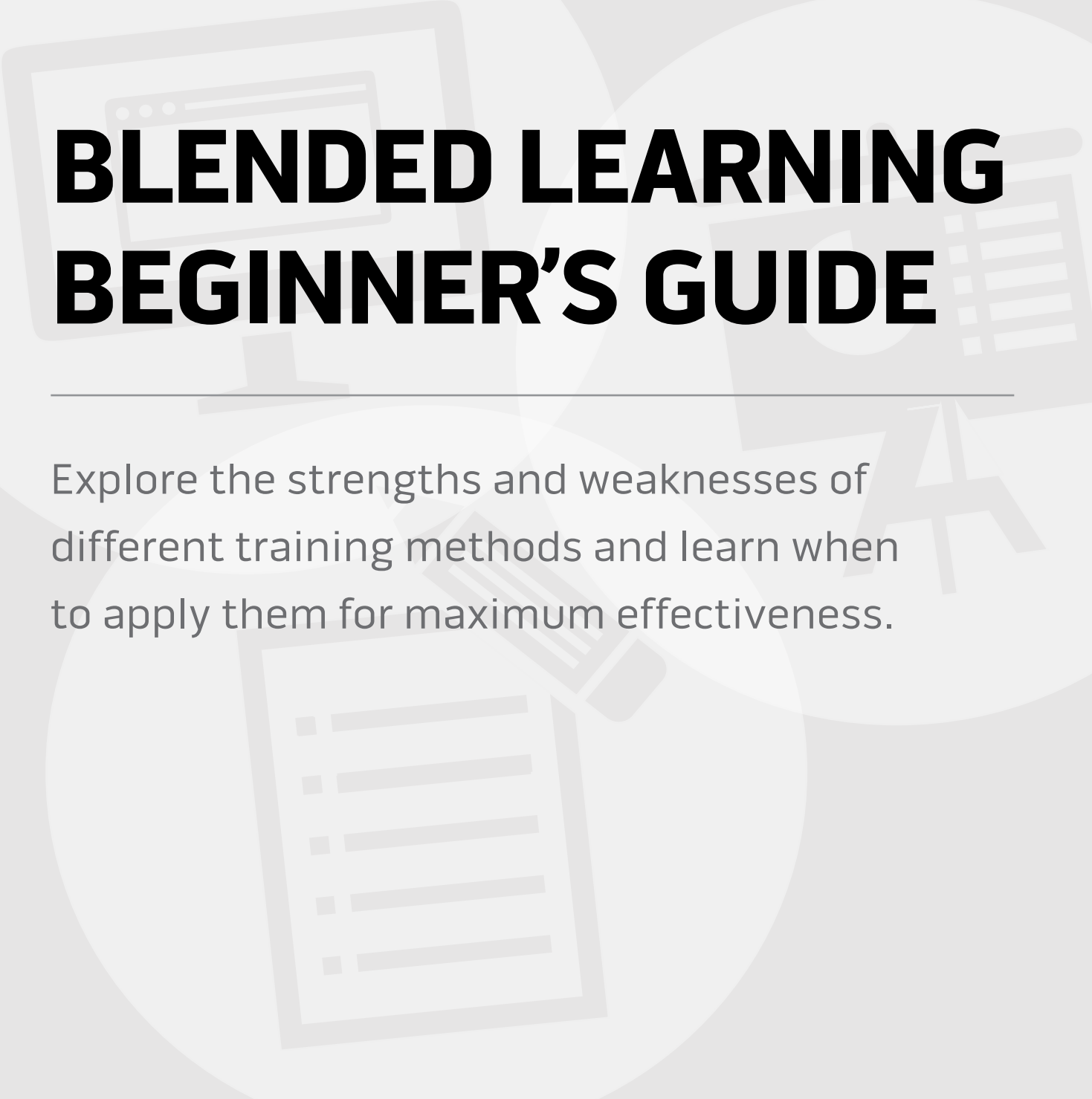


BLENDED LEARNING BEGINNER'S GUIDE

Explore the strengths and weaknesses of different training methods and learn when to apply them for maximum effectiveness.



The Benefits of a Blended Training Program

Training managers have a number of options in their training “quiver.” These include written materials, instructor-led classroom training, on-the-job training (OJT mentoring) in the form of “shadowing” or “following,” in-the-field demonstrations of skill performance, off-the-shelf computer-based training (CBT) modules, and even custom CBTs.

But which option to choose when? Is one type of training always the preferred, most effective way to deliver training?

Although some may tell you that instructor-led training is always the best, and others may tell you that computer-based training is. Research and evidence suggest that blended training programs that incorporate different forms of training achieve the best combination of training efficiency and low costs while meeting unique training needs in different circumstances.

In the pages that follow, you’ll investigate these issues by exploring:

1. Training for desired types of behavior // p. 3

2. Evaluating different training methods // p. 6

3. Choosing an appropriate training method // p.12

1

TRAINING FOR DESIRED TYPES OF BEHAVIOR

Let's start by asking why you train employees in the first place. Put simply, it's because you want to create a change in your employee's behaviors (or, to break that down a bit, their knowledge, skills, and attitudes).

Think of your training needs as forming a pyramid. The pyramid has three levels. Each level represents a set of behaviors that you want your workers to perform—basic behaviors, intermediate behaviors, and advanced behaviors.

At the basic level, you want the worker to be able to recite or explain information that's fundamental to his or her job. At the intermediate level, you want the worker to be able to apply that information and perform skills on the job. And at the advanced level, you want the worker to be able to transfer the basic and intermediate-level knowledge and skills into new contexts or to create new knowledge.

ADVANCED

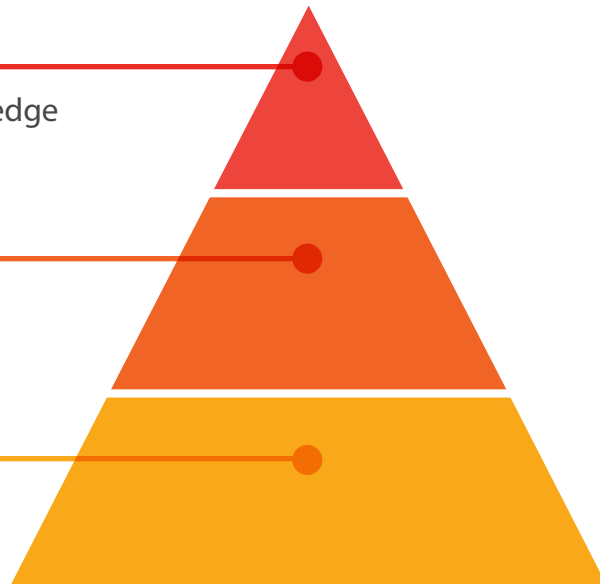
Transfer Knowledge and Create New Knowledge

INTERMEDIATE

Apply Knowledge

BASIC

Recite Knowledge



 **BASIC**

The bottom of the pyramid is the basic level. This is the large collection of knowledge, concepts, and theories workers must know.

EXAMPLE: Mandatory compliance training alerting workers to the hazards of a workplace, or training that explains the basic workings of a machine and the flow of product through the machine.

 **INTERMEDIATE**

The middle of the pyramid is the intermediate level. This is when workers can apply that basic knowledge in their job.

EXAMPLE: Being able to use a fire extinguisher or operate a machine.

 **ADVANCED**

The top of the pyramid is the advanced level. This is when workers can take their basic and intermediate level knowledge and skills and apply them in new ways, situations, or circumstances.

EXAMPLE: Worker would take his or her knowledge of how a machine works and how to operate it and apply that information in order to troubleshoot a problem with the machine and keep it operating at peak efficiency. Or, the worker would take knowledge of basic fire safety information and procedures and create an emergency action plan for your site.

INDUSTRIAL EXAMPLE

SAFETY EXAMPLE

ADVANCED

Troubleshoot Machine

ADVANCED

Create Emergency Action Plan

INTERMEDIATE

Operate Machine

INTERMEDIATE

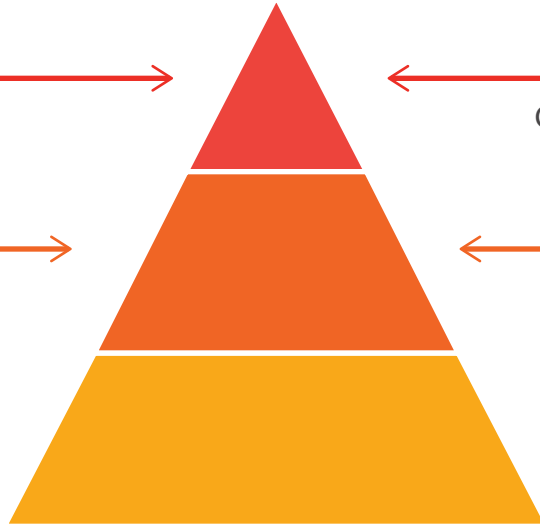
Operate Fire Extinguisher

BASIC

Explain How Machine Works

BASIC

Explain Fire Extinguisher Procedures



BLOOM'S LEARNING TAXONOMIES

These three levels—basic, intermediate, and advanced—map closely to Allan Bloom's famous learning taxonomies. Applying the three levels to Bloom's cognitive learning taxonomy, the basic level includes knowledge and comprehension, the intermediate level includes application and analysis, and the advanced level includes synthesis and evaluation.

The Basic/Intermediate/Advanced pyramid could also be applied to Bloom's affective (attitudes) and psychomotor (skills) taxonomies.

ADVANCED

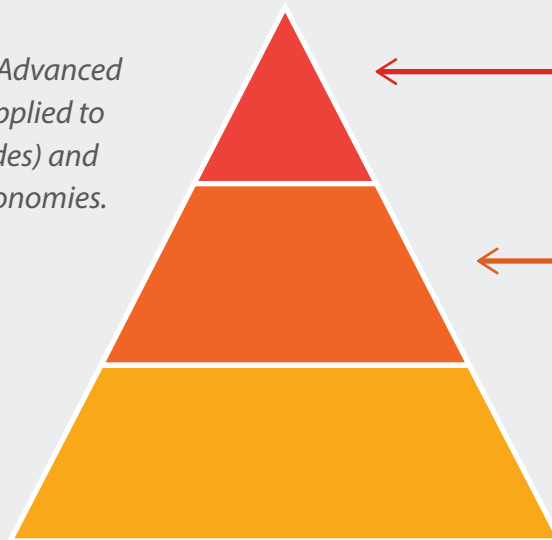
Synthesis & Evaluation

INTERMEDIATE

Application & Analysis

BASIC

Knowledge & Comprehension



2

EVALUATING DIFFERENT TRAINING METHODS

Now that we've discussed the kinds of behaviors you want your workers to display, let's look at the type of training materials that you can use to try to elicit those behaviors.

Research shows that, all things being equal, no one training format is universally better than other formats. For example, a teacher who has access to a large number of visual teaching aids, who works with a good understanding of adult learning principles, and who has unlimited patience for reviewing can be just as effective as computer-based training (CBT) modules. And likewise, a CBT module that anticipates the questions of learners and provides problem-solving and practice opportunities that are similar to the real tasks workers will perform on their job are just as effective as instructor-led training sessions.¹

But, as we all learned quickly in life, things are rarely equal. Instructors rarely have access to the kind of visuals that a CBT can have, and it can be too costly to build all CBTs with sophisticated problem-solving and scenario-based practice exercises.

As a result, we find that in real-world applications, it's best to pick and choose the format of training to match the circumstances of the training need. When making those decisions, it's best to keep in mind:

- › **The effectiveness of the training format for creating the desired behavior**
- › **The cost of delivering training in that format**
- › **Unique aspects of the training needs and format**

Now let's look at some pros and cons of different training methods.

1. "E-Learning and the Science of Instruction, Proven Guidelines for Consumers and Designers of Multimedia Learning" by Ruth Colvin Clark and Richard E. Mayer.

WRITTEN MATERIAL

Most work places make use of written material as part of their training programs. This can include information in Word documents, Excel spreadsheets, PowerPoint presentations, .PDFs, internal websites and SharePoints, books, magazines, and other publications, and more.

ADVANTAGES

- + Inexpensive to acquire or produce (at least on a relative scale)
- + Present the same standard, consistent message to all readers
- + Work well for learners who learn well by reading
- + Allow learners to proceed at his/her own pace
- + Are accessible and can be reviewed later, after training (or used as job aids and just-in-time performance support instead of being used for training)
- + Can include visual images that increase learning
- + Can be converted into digital format and delivered online

DISADVANTAGES

- Difficult to distribute to all workers if they are in a physical (book/magazine) format
- Converting them to digital format can be time-consuming and expensive
- Often tend to be text-heavy and don't take advantage of explanatory power of visuals
- Don't work well for learners who don't learn well from reading (including workers who speak English as a second language or read at a low grade level)
- There is no built-in way to assess if the learner has understood the material
- Reading may be very time consuming for some learners

INSTRUCTOR-LED CLASSROOM TRAINING

Instructor-led, classroom training is very common in many work places.

ADVANTAGES

- + Allow for highly interactive, question/answer sessions
- + Instructor can lead or guide hands-on exercise and problem-solving
- + Some learners prefer learning from another person
- + Can help to place information into specific context of job

DISADVANTAGES

- Ineffective if instructor is unfamiliar with adult learning principles (and other basics of training)
- Message delivered to learners may be different from session to session
- Some instructors may intentionally deviate from company's intended training messages
- Can become boring, PowerPoint-driven lecture that puts people to sleep
- Not self-paced, and difficult to modify for fast and slow learners in same class
- Learner can't later review class on his/her own
- Can be costly to arrange (costs of scheduling and arranging, travel costs for instructor and learners, room rentals, time away from work, and overtime pay to complete training)
- Costs can multiply very quickly if training is repeated again and again
- Many companies simply have a limited number of trainers and must use them judiciously

ON-THE-JOB (OJT) TRAINING AND SKILLS

Call it what you will: on-the-job training (OJT), shadowing, following, mentoring, or “go follow Joe.” What we’re talking about here is having one worker learn from another, typically more experienced worker, while on the job.

ADVANTAGES

- + The trainer is an experienced, knowledgeable worker
- + The learner sees the real-world context & on-the-job application of information being learned
- + Learner has opportunity for hands-on learning
- + Trainer can observe, guide, and assess learner’s performance of job skills
- + Provides opportunity for question/answer sessions and mutual problem-solving

DISADVANTAGES

- If the OJT program is not well planned, the learner may not learn all necessary parts of job
- Trainer may not be experienced or knowledgeable enough about job to provide training
- Trainer may be poor trainer unaware of adult learning principles and other best practices
- Trainer may not want to provide the training (for any number of reasons)
- There is a potential for interpersonal conflict or competing goals
- Trainer may deviate from the company’s intended training message
- Training may be inconsistent from day to day or from learner to learner
- Can be costly and inefficient for knowledge transferred

OFF-THE-SHELF CBTs

Many companies make and sell pre-created computer-based training modules that you can buy “off the shelf” and “plug and play” as part of your training program at work. Though these may take many different forms, they will often include multimedia (both spoken word and visuals) and some form of assessment. In many studies, experimental psychologists and educators have found that retention of information three days after a meeting or other event is six times greater when information is presented by visual and oral means than when the information is presented by the spoken word alone.²

ADVANTAGES

- + Easy to assign and deliver training through learning management system (LMS)
- + Available 24/7 from any location with a computer
- + No travel costs associated with training
- + Easy to track when learner completes training and keep records/run reports on completion
- + Delivers standard, consistent message again and again to each learner
- + Designed with adult learning principles in mind
- + Becomes inexpensive when used for large numbers of learners or over and over again
- + Allows for self-paced training

DISADVANTAGES

- Initial cost may be high, appear high, or be difficult to get budgetary approval
- No opportunity for person-to-person interaction
- Multimedia interactivity may be limited in “basic” off-the-shelf CBTs
- Policies, procedures, and tasks explained in CBT may not be perfect match for your own
- Employees must have access to computer to complete
- Some employees may resist using computers (this is becoming less of an issue with time)

2. See example: <http://www.osha.gov/doc/outreachtraining/htmlfiles/traintec.html>

CUSTOM-MADE CBTs

Custom-made CBTs are built specially for your company's training needs by a training material creator. They may be different than off-the-shelf CBTs in that they may more directly match your policies, procedures and desired training messages. Custom CBTs also often incorporate fully realistic depictions of your company work areas, machines, equipment, and tools.

Advanced Features -Some custom CBTs offer many of the following advanced features:

- > **Pretests**
- > **Non-linear learner advancement through modules**
- > **“Branching” in which learner progress depends on the learner’s choices**
- > **Real-world problem-solving opportunities and scenario-based training that allows learners to practice tasks relative to their position**

ADVANTAGES

- + The same advantages that off-the-shelf CBTs have (see section above to review those)
- + Directly matching your work procedures and policies
- + Directly matching your work areas, machines, and equipment
- + Higher engagement, comprehension, and retention from increased interactivity
- + Increased transfer and creation of new knowledge through problem-solving exercises and practice opportunities

DISADVANTAGES

- Similar disadvantages of off-the-shelf CBTs (see previous section to review those)
- Additional cost of having custom content created
- Additional amount of time in working with training creator to create custom materials

3

CHOOSING AN APPROPRIATE TRAINING METHOD

Now it's time to match the characteristics of the training formats we just explained to the different levels of the training pyramid described earlier to determine which formats are best suited for each level.

There is no right answer when discussing this, but in our experience, we've found that the training methods we've discussed work best when applied to the tasks as in the graph below.

COMPARISON OF CHARACTERISTICS WITH TRAINING FORMATS

Learner's Behavior	Best Training Format	Industrial Example	Name Level
Transfer & Create New Knowledge	Instructor-led; OJT; Custom CBTs	Troubleshoot Machine	ADVANCED
Apply Knowledge	A Blend of all Types	Operate Machine	INTERMEDIATE
Recite Knowledge	Written Materials; Simple Custom CBTs; Off-the-shelf CBTs	Explain How Machine Works	BASIC

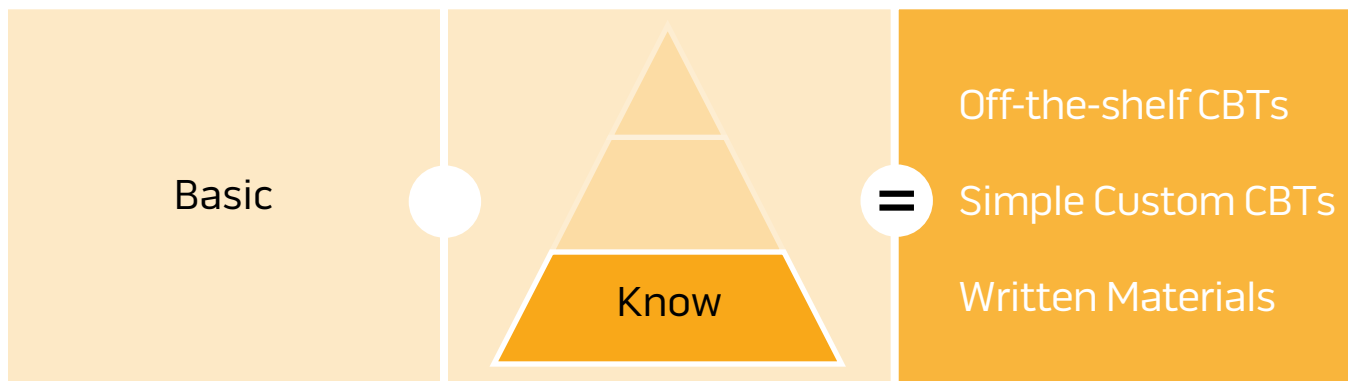


TRAINING FOR BASIC BEHAVIORS

KNOWLEDGE COMPREHENSION

Lean heavily on cost-effective, easy-to-distribute written materials and off-the-shelf CBTs for basic training. In particular, take advantage of the following aspects of off-the-shelf CBTs here:

- › Inexpensive when assigned to large numbers and over repeated years
- › Fundamentally sound instructional design
- › Audio and visuals reinforce one another to improve training effectiveness
- › Easy to assign for repeated/refresher training
- › Built-in assessments to ensure learner comprehension
- › Uses LMS to keep records of completion for compliance and other reporting needs
- › Available 24/7 so workers can complete during normal work day



That said, you should also consider custom-made CBTs here. The initial cost of the custom-made CBTs may exceed that of off-the-shelf CBTs, but over time they'll save you money over the expense of repeated instructor-led training sessions. Plus, they'll have all the same benefits that off-the-shelf CBTs have (as listed above), with the added bonus of being specific to your equipment, processes, and procedures.

Finally, try to reduce the amount of in-the-field, OJT, and instructor-led training at this level. Given the limited number of instructor/mentor hours most sites have available and the potential for high costs in scheduling and running these trainings, it's best to save them for higher levels of the training pyramid where you'll get more bang for your buck.



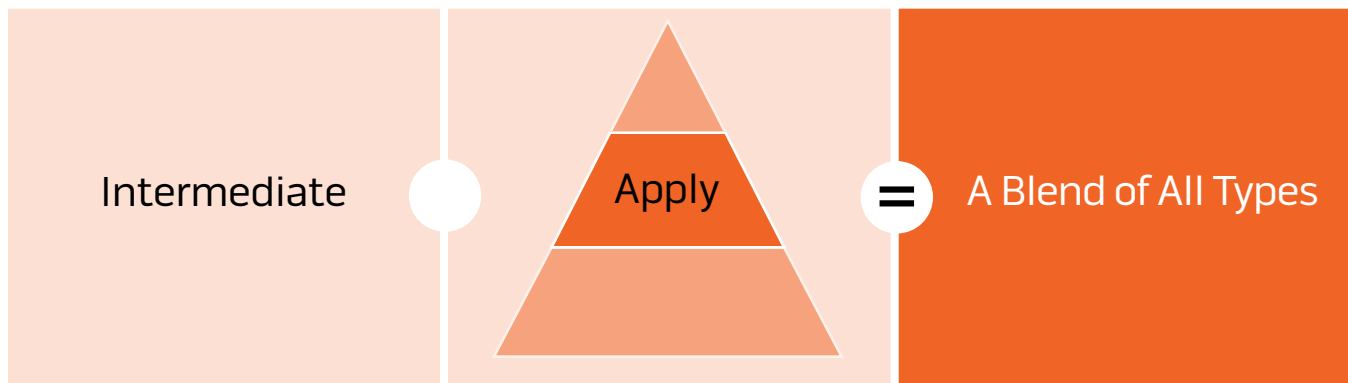
TRAINING FOR INTERMEDIATE BEHAVIORS

KNOWLEDGE APPLICATION

This level of the pyramid is a bit of a wild card—you're likely to use the widest variety of training formats for this level.

You'll definitely begin to get good value from in-the-field and OJT training, and some forms of instructor-led training will become helpful and cost-effective at this point.

Written materials will still be of some use, though most likely not as much as they were in the basic stages.



As for off-the-shelf CBTs, the value of some of these begin to decline at this level. That depends on the topics and how closely they meet your work equipment, processes, and procedures, of course. For example, off-the-shelf CBTs that explain OSHA regulations for compliance purposes have limited use at this level, but off-the-shelf CBTs on papermaking fundamentals may have a lot of bang for their buck (assuming you're a papermaker, of course).

This level may also be where relatively simple custom CBTs make the most sense, since they can be made to match your own work processes.



TRAINING FOR ADVANCED BEHAVIORS

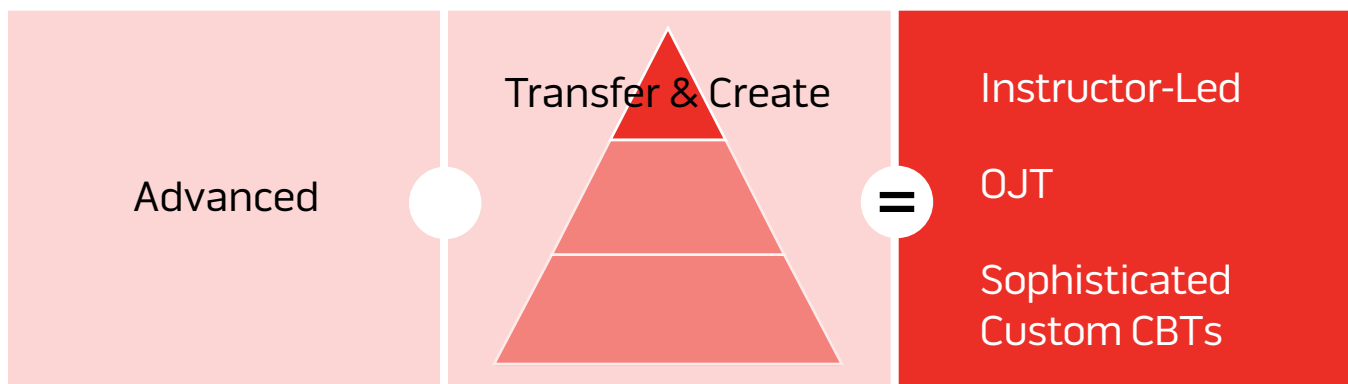
KNOWLEDGE TRANSFER AND CREATION

Just as you leaned heavily written materials and off-the-shelf CBTs for basic training, you should maximize the use of in-the-field, OJT, and instructor-led training at the advanced level.

Basically, now's the time to get the most bang for your buck out of the different forms of person-to-person training. Because you're trying to elicit higher-level behaviors from your employees here, you'll want to make use of training that incorporates the higher-level thought processes that are the strength of interpersonal training, including:

- › **Ability to communicate directly, ask questions, receive answers**
- › **Ability of trainer to observe and accurately estimate learner's level of comprehension**
- › **Ability of learner to guide learner to correct answer**

But that doesn't mean CBTs are totally inappropriate at this level. In fact, more "sophisticated" custom-made CBTs that incorporate simulations, realistic problem-solving exercises, scenario-based questions, non-linear branching based on learner response, and other forms of interactivity may be highly useful here, and can become very cost-effective when used over time.



CONCLUSION

So there you have it—use blended learning solutions to maximize the effectiveness and efficiency of your training programs.

The tips you just read should help you choose appropriate methods of training to satisfy each of your training needs. Although the methods described in this guide won't answer solve all your challenges, matching written training materials/instructor-led/OJT/CBTs to the basic/intermediate/advanced pyramid explained above will give you a head-start to making the right choices.

ADVANCED

Instructor-led training, on-the-job training, sophisticated custom computer-based training

INTERMEDIATE

A blend of all types of training

BASIC

Off-the-shelf CBTs, simple custom CBTs, written materials

