

Effective Training Techniques for SH&E Professionals

by the Communications &
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As safety and health professionals, many of you are required to train your or another company's workers in safety and health issues. This training is required by many state and federal agencies.

So, how do you get started? There are many approaches to developing and delivering adult training. The approach which seems to satisfy NIOSH, OSHA, the U.S. Environmental Protection Agency (EPA), as well as the U.S. Department of Housing and Urban Development (HUD), is "competency-based" training.

Competency-based training is based on the answers to three questions:

1. What do you want the trainees to know/be able to do (competencies) after the training?
2. What is the best way to teach these competencies for maximum retention/behavior change?
3. How will you determine that the trainees know/can do what you have taught them after the training session?

Let's look at the answers to these three questions:

1. What do you want the trainees to know/be able to do?

If your purpose in developing and delivering the training is to meet the requirements of mandated training, the competencies (at least as far as the "what," if not the "how well" is concerned) are frequently delineated in the standard or regulation which mandates the training.

However, not all safety & health training is performed because of a governmental mandate. Actually MOST training is the result of requests based upon perceptions of, or carefully analyzed and proven gaps between, "what is" and "what should be." What we are referring to, is a carefully planned and executed "needs assessment."

What is a Needs Assessment? Here is a definition:

“A series of activities conducted to identify problems or other issues in the workplace and to determine whether training is an *appropriate* response.” (McArdle)

Before we get to the steps for identifying need and/or performance gaps, here are four “Hints for Success” when taking on the task of assessing training needs:

Hint #1: Involve Management Early! Start talking about the necessity of searching out all factors involved in possible training needs. It always helps to have a “champion” within management—someone you can meet with outside of formal management meetings to get some help and/or guidance for working with these decision-makers.

Hint #2: Examine All Factors Involved, because...

Hint #3: Training May Not Be the Appropriate Response—there are some problems that cannot be solved by training. Margaret Samways did a great job of explaining this in the “Training Tips” chapter of the latest AIHA “White Book.”

Hint #4: Determine Company Standards—this is essential to defining the gap which is to be addressed.

Next are the five steps for identifying a training need:

Step One: Identify needs and performance gaps: How does current achievement compare to expected results? At this stage concentrate on identifying needs—not solutions! How?

- Observation (Job Analysis?)
 - Reviewing job literature (e.g., handbooks, Policies & Procedures, job descriptions, etc.)
 - Observing job performance
 - Questioning people on the job
- Interact With People at All Levels – find out:
 - How they feel
 - What they know about the organization and their environment—strengths/barriers?
- Analyze Written Communications (if available to you)

- Identify Key Data Sources
 - Human Resource records
 - Accident and safety reports
 - Production statistics
 - Determine type of data Available
 - Hard (factual and objective)
 - Soft (subjective)
- Select Data Collection Methods (for analyzing trainee backgrounds)
 - Questionnaires
 - Interviews
 - Observations
 - Focus groups
- Organize a Task Force
 - representatives from each department are important to “buy in”
 - include those who know and care, and those who do not care, but should
 - find a “champion”
- Organize the Data With the Help of the Task Force
 - Sort the info you’ve gathered into categories
 - Separate training from non-training issues
 - Identify content or training topics
 - Determine if there are hands-on skills issues

Step Two: Clearly Define the Problem

- Answer “***Who, What, Why, When and How***”
- Develop a Clear and Concise Problem Statement
- Document Causes of the Problem: Is the Performance Problem Caused by Lack of:
 - Skills and knowledge to do the job?
 - Specific standards or job expectations?
 - Feedback?
 - Necessary resources to perform?
 - Appropriate consequences?

In Addition:

- Identify Feelings About the Problem
- Separate Facts From Opinions

- Decide Whether Training is Appropriate --
 - If Problem Is the Result of:
 - Poor communication
 - Lack of feedback
 - Inadequate supervision
 - Inappropriate or inadequate rewards
 - Inferior procedures
 - Engineering problems

...Then Training Is Not the Answer!

On the Other Hand, if the problem is caused by a lack of information, knowledge or skill, training can meet the need.

Step Three: Determine the Type of Training Need

- Sources of Training Needs (based on work of Laird, 1985, and Nadler, 1982)
 - People – are the people doing the job un- or under-trained?
 - Job – is the job clearly defined for the worker so he/she can perform to expected outcomes?
 - Organization – does everyone in the organization know where he or she fits into the total picture?

Step Four: Develop Priorities

- Set Priorities for the Various Identified Needs (Cost of Meeting the Need vs. The Cost of Ignoring It)
 - What will a solution cost?
 - How much time will the solution take?
 - What is the cost of ignoring the problem?
- This Information Is Essential to Winning Support for Any Solution.

Step Five: Meet With Management to present initial findings – go over the scope of the task of meeting the training need(s). Try to get a consensus on the need(s) as well as the desired outcomes from the training. Use your champion to help get “buy in” from the members of management on the identified need(s) as well as the appropriate outcomes of the training. Be sure to identify a contact person within the management group for the after-training report. Try to get management’s commitment to proceed in writing! (If it’s not written down—it didn’t happen!)

Lastly, here are some things you can do when there is not enough time to complete a “full-blown” needs assessment:

- Visit or phone, email, etc. a contact person who is familiar with the participants.
- Introduce yourself and ask participants some key questions via telephone. Trust the responses to be representative and treat them as if they were a sample of the larger group.
- Be sure you receive relevant materials (surveys, meeting notes, records).
- Obtain opinions and impressions from other trainers who have worked with the training group.
- Talk to participants who arrive early and obtain whatever information possible.
- Design some activities at the beginning of the program to enable assessment of the group. (adapted from “Conducting a Needs Analysis” – Geri E. H. McArdle, Ph.D.)

We’ve spent a lot of time on finding out what the training need could be, that’s because it is the essential step for planning and presenting the training.

Once you have determined the answer to the first question of what competency or competencies are needed, you formulate these competency needs into learning objectives (“Written statements of the desired knowledge/ability, skill or attitude to be demonstrated by trainees after the training intervention,” adapted from the Z490 ASTM Standard).

Learning Objectives Guide:

1. the content of the instructional materials,
2. presentation methods of instruction, and
3. methods for evaluation of achievement.

Learning Objectives have:

- a. a beginning with an **action verb** (e.g., at the end of this 1/2-hour training session on _____, you **will be able to:**) ;
- b. a statement as to what the trainee will be able to do—which is measurable and observable (the key is to use an action verb!*);
- c. conditions/specifics as to the complexity of the performance described in the learning objective (such as: “within 5 minutes”; or “without help from instructor); and
- d. the standard to which the trainee will be held (e.g., OSHA, company, HUD, EPA, etc.).

Examples:

“At the end of this session the trainees will be able to list and discuss the four major factors involved in mold remediation according to the Centers for Disease Control, without help from the instructor or class notes.”

“At the end of this session students will be able to accurately demonstrate, using a half-face respirator, the manufacturer’s recommended method for donning and doffing the respirator, without help from the instructor, class notes, or other trainees.”

“At the end of this ten-week course most students will choose the quantitative method over other methods for fit testing respirators in their workplaces.”

2. What is the most effective way to teach these competencies for maximum retention?

There are some well-researched and proven effective training techniques which you can employ to maximize the effectiveness of your training. The first of these techniques is **variety**.

Instructional variety is the variability or flexibility of delivery during the presentation of a training program. This variety can be employed in your **training format**, for example, lectures, demonstrations, group work, and hands-on workshops.

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*Bloom, Harrow & Krathwohl have lists of active verbs based on type of learning and levels of complexity available on the Internet.

The type of format is determined by what competency you are training. If, for example, your training session is to deal with changes in regulations, you could use a lecture format or a hands-on exercise by giving the trainees a copy of the regulation and having them find the changes. If your training session is for the purpose of training the workers how to use a new procedure, you would want to use a demonstration followed by a trainee hands-on workshop so they have the opportunity to practice the new skill.

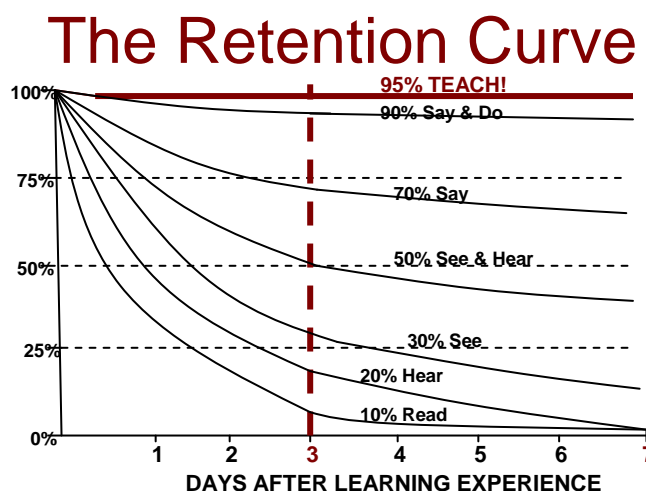
Instructional variety also can be employed in the type of **visual aids** you use. Perhaps a PowerPoint™ slide of an old version and a new version of a regulation could point out the changes/differences in the new regulations. Or the use of a chalk/white board would serve well during the session. Props also can be useful when explaining how to operate new equipment. The point is to fit the format and visual aids to the type of training you are doing, while also helping your trainees to pay attention through varied stimulus.

Another purpose for training variety is to account for the differing ways adults learn. Some adults are “visual.” If they can see it, they can understand it. Others need to “touch” it. They want to hold or touch the new equipment or actually complete a new kind of record-keeping form. Others seem to only need to hear an explanation of how something works and they can *go with it*.

It is important to get to know your trainees to get a sense of what works with each one of them. Of course, the best presentation technique is to appeal to several of the senses during the training process. According to J. M. Owen of the Center for Teaching Thinking, we retain:

- 10% of what we read,
- 20% of what we hear,
- 30% of what we see,
- 50% of what we see and hear,
- 70% of what is discussed,
- 80% of what we experience, and
- 95% of what we teach.

And, the ubiquitous Retention Curve says:



Another effective training technique is **clarity**. This refers to how understandable and easy to interpret a presentation and the training materials are to the trainees. Use examples that relate to what the trainees already know. This gives them a "frame of reference" to build on or compare to. Asking the trainees questions during the session will help you to determine if they are "getting it," or if you need to use more examples, more thorough explanations, or different training materials.

Right along with clarity, is the technique of **applying the learning to the trainees' concerns**. Adult trainees are task-oriented – they want to know how the learning will help them on their jobs. So, be sure to relate what the trainees are learning to their on-the-job responsibilities (the "What's in it for Me!" concept).

It is always important to plan **sufficient time** for the training and practice sessions. Trainers have proven time and again that if insufficient time is spent on the in-class training and/or practice sessions, the learning just doesn't take place, or it is soon forgotten. Unfortunately, many of the regulations that mandate training also mandate the minimum amount of time the training program must last. This is unfortunate because it does not take into account the trainees who learn at a slower pace. Even though there is no "maximum" duration given, it is seldom indeed, that a trainee (or his/her supervisor) would want or be allowed to be away from the job any longer than is required by the regulation.

The next effective training technique is **success**. This simply means ensuring the trainees experience success in learning what you are teaching them. One way to ensure this success is to start off with simple or easy concepts and progress to the more difficult concepts only after the trainees have mastered the easier things. Trainees who experience success early in the training are more inclined to feel they are able to master the more difficult material that comes later in the training. They are more motivated to tackle the harder material because they have seen that "yeah, I can do that." Positive trainee attitudes are important to a successful training session.

Lastly, be sure to allow the trainees to **practice** what they have been learning, even if this practice consists of telling another trainee, or completing a worksheet. But be sure that the practice is **guided**. This means that the instructor must monitor the practice to be sure the trainee is practicing the new skill or knowledge correctly. Remember, "practice makes perfect," but practicing something wrong makes you perfectly wrong!

3. How will you determine that the trainees know or can do what you have taught them?

There are many ways to evaluate learning, among which are:

- trainee written examinations,
- trainee verbally answering questions, and
- observation of trainee performance.

And don't wait until the training is completed—some type of evaluation (quizzes; Q&A sessions; etc.) should be incorporated throughout the training sessions.

Which one of these evaluation methods you use is determined by a number of things: What type of training did you do (knowledge, skills, or attitude modification)?

In some cases the evaluation method is specified in the regulation mandating the training. Which evaluation method you choose could depend on requirements of the regulation, available time and resources, literacy level of the trainees, and type of training that was given. Of course, the best way to evaluate skills training outcomes is to observe the trainee once he/she is back on the job (and is unaware of being observed).

Attitudes can be measured by instruments such as Likert™ scales; adjective checklists, or a semantic differential evaluation. Likert™ scales seem to be the instrument used most frequently:

I will have enough time on the job to use what I learned (circle one):

5	4	3	2	1
Definitely	True	Somewhat	Not	Definitely
True		true	true	not true

Summary:

Remember to consider these three questions and let them be your guide to effective training:

1. What do you want them to know or be able to do?
2. What is the best way to teach them?
3. How will you determine that they know or can do what you have taught them?

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