# Engaging Learners
## Techniques to Make Training Stick
### By Fred E. Fanning

**M**any adults have sat through classes waiting for some expert to provide them with all the answers to their jobs' most challenging safety hazards. Often, however, they take away little or nothing from the session. The bottom line to training is to "give it to them so they get it" (Bowman, 2003). Giving information to students so they "get it" takes innovation, which the author defines as a desire to do things differently, through activity, with the student in mind, while making every effort to ensure that the learning material is accessible.

Grimaldi and Simonds (1993) identify education and training as a critical step in carrying out a logical and orderly safety and health program. If done right, this important step will help employees and management understand their roles and responsibilities in preventing accidents. This article is an opportunity for readers to build on what they already know or perhaps change it to something that works better (Fanning, 2009).

### The Training Process

According to Kline (1985):

> [T]raining emphasizes the psychomotor domain of learning. Training that is done in the cognitive domain is generally at the knowledge level and lower part of the comprehension level. Education, on the other hand, teaches a minimum of psychomotor skills. It concentrates instead on the cognitive domain, especially the higher cognitive levels (i.e., high comprehension and above).

In layperson's terms, training provides students an opportunity to learn skills for a particular job or task, while education provides an opportunity for them to learn concepts and ideas from a universe of information.

SH&E professionals are most often called upon to provide training to students on specific safety procedures and tasks as opposed to education. Several methods can be used to train employees. "Job rotations, special assignments, reflecting on experience, coaching and counseling, mentoring, manager as

**Fred E. Fanning** is the author of *Basic Safety Administration: A Handbook for the New Safety Specialist,* published by ASSE. He also authored "Safety training and documentation principles," a chapter in ASSE's best-selling *The Safety Professionals Handbook.* Fanning is a public speaker who has presented papers before various national groups including ASSE's annual conference. He is a professional member of ASSE's NOVA Chapter and is a member of the Public Sector Practice Specialty.

teacher, learning teams and self-development, and individual development plans are just a few" (Human Resource Development Council, 1997).

Adults learn differently than children and should be given credit for life experiences they bring to the training. A trainer must provide opportunities for students to engage in the learning process. By engaging learners, the trainer can increase retention and understanding.

Lecture is the most common method of training. "Lecturing is often done because it is the easiest way to teach or instruct for the person doing the speaking. It has been modeled for years so it must work, and it is the fastest way to put out a lot of information" (Bowman, 2002). However, according to Bowman, people normally remember only 20% of what they hear.

Bowman (2002) also believes that hands-on training means that listeners are doing something, as opposed to just sitting and listening. This something can be anything that includes movement and action, such as reading, writing, standing, moving parts of the body, or asking or answering questions. Such training requires more work by the trainer because activities must be planned and prepared. However, since lecturing only provides a 20% return on the time invested, there clearly are better methods.

Adults prefer to work through information and get physically involved. This means trainers should speak as little as possible and spend more time with hands-on activities. Kelly (2006) describes this eloquently. "Adapting sensory stimulation in the form of 'tell, show and do' will allow participants to practice their new skills."

Trainers can use various methods to accomplish this. First, it is important to remember that adults retain 20% of what they read and hear, 40% of what they see, 50% of what they say, 60% of what they do, and 90% of what they see, hear, say and do (Copeland, 2003). Compare this to the fact that 1 year after training the average adult retains only 10% to 15% of what s/he learned. Given the dramatic loss of information, trainers must focus on methods that ensure the best retention—learning that allows students to see, hear, say and do.

Methods to achieve this include fun and games. The concept of using fun and games in safety training comes from the principles of accelerated learning and is focused on results, not the material or activities themselves (Tapp, 2006). Trainers must learn about innovative methods and consider using them inside and outside the classroom.

## Talk

"Talk of all kinds (monologues, dialogs, discussions, debates, interviews and arguments) promotes creative and critical things" (Smith, 1990). Each person is accustomed to speaking in small, informal groups. Trainers should take advantage of this experience and place students in small groups that facilitate discussion. Such discussion allows each student to share with fellow students experiences that relate to the learning objective; then, group members can discuss the relevance and applicability of each other's ideas.

Through this method, new ideas are shared and evaluated. Usually, a group can generate more ideas than a single trainer, which makes this method more productive. Talk can get out of hand if the trainer does not act as the facilitator. Keep the discussion on topic and pay specific attention to using only the time allotted for talk.

## Role-Playing

Role-play is another powerful technique. "Unfortunately, it suffers from a real problem; trainers hate it" (Clegg, 2000). Some trainers dislike this method because of the amount of time required to set up and execute the activity. Normally, trainers spend 2 to 3 hours preparing for 1 hour of instruction. With role-playing, a trainer can spend 5 to 6 hours preparing for 1 hour of instruction.

Laird and House (1996) provide basic information on role-playing. "In role-play, learners enact the situation rather than merely talk about it. In a significant way, role-playing lets learners escape the environment of the classroom to behave as they would in another place and at another time."

Role-playing can be spontaneous. Everyone should have a role, even if it is only to observe. The validity and effectiveness of learning is based on learners' enthusiasm in playing their roles. Trainers can build enthusiasm by ensuring that the scenario is believable; is applicable to the lesson being taught; gives everyone a role; and requires that everyone play their role in character.

The real learning is based on the believability of the role-play scenario and how it requires participants to respond in their roles. Role-playing simulates complex interpersonal interaction that itself creates valuable lessons, not just about the topic but also about how it can be used and how others will respond to it.

In addition, participants learn valuable life skills that will help them use the learning objectives in the workplace. Role-players will learn and practice subtle interpersonal skills as they work through the role and interact with others. These skills include personal interaction, public speaking, listening, communicating ideas and participating in a team. Students also will learn that each situation has hidden complexities which may not be clear or taught in the lesson.

## Group Projects With Single Response

One effective exercise is a group project with a single response. The trainer breaks the class into

**IN BRIEF**
•Too often, adult trainees walk away from training with little information.
•Trainers must look to new methods, including role-play, games, group projects, peer coaching, guided discussion, demonstrations and storytelling, to ensure the best possible retention.

groups of three or four students. Each group receives a short description of a situation. This description is followed by questions to be answered by the group. Limit questions to three due to time constraints. Once the group arrives at a collective answer for each question, the group's recorder stands and presents the answers to the class.

Consider this scenario. The situation description states: You're a small plumbing company in your 15th year of operation. The company is laying sewer pipe approximately 9 ft underground in a small town. The contract calls for you to dig trenches, install pipe, fill trenches and install sod.

Each group answers two questions about investigating incidents that have occurred to personnel during this project.

1) At approximately 9:30 a.m., a backhoe operator burns his hand while performing a maintenance check on the backhoe after it began having hydraulic problems. The operator sustains minor burns and loses the current workday due to the injury. He returns to work the next day. What are the activators, competencies and consequences at work here?

2) At approximately 6:30 a.m., a laborer collapses after being struck by a 7-in. piece of pipe while it was being sling lowered into a trench. He is rushed to the hospital by ambulance. He sustains a concussion and remains hospitalized for 3 days. What attitudes were present?

Members of each group agree to a single answer to each question. The trainer then calls on each group and the recorder presents that group's answers. Working in groups allows students to move around, discuss their ideas and opinions with others, come to resolution of a single answer and present it to a class.

In all group settings, supervision is key. If left unsupervised, participants may drag the process out or request additional breaks, consuming valuable class time. To prevent these distractions, the trainer must act as a facilitator, keeping the discussion on topic and paying specific attention to using only allotted time. It is best to take a break separate from the group project to limit the time students are absent from the session.

### Group Projects With Individual Responses

The trainer divides students into groups of three or four. Each student receives a short description of a situation, along with several questions (normally limited to three, due to time constraints). Group members can discuss answers with each other, but each participant must write his/her own answer. Once each student has answered each question, the trainer calls on various students to share answers with the class.

For example, a trainer breaks a class of 15 into five groups of three. Each group receives a copy of 29 CFR 1926 and each student receives a description that states: Review Subpart D of 29 CFR 1926 and answer these questions. Be prepared to present your answers to the class.

1) What was your overall impression of OSHA Subpart D?

2) Were there any unanswered questions after reading the assignment?

Each group member decides on an answer to each question that s/he believes is correct. The trainer calls on students at random, seeking answers that differ from previous responses. Typically, three answers help demonstrate diversity in responses and show how differently people think. This method allows students to move around, discuss their ideas and opinions with others, and decide on and present an answer. Again, the trainer must be alert to keeping students on track.

### Group Examinations

For group exams, a trainer divides students into groups and explains that based on scenarios assigned to each question, the group is to answer a question. Group members discuss the question and must arrive at one answer for each question.

To prepare to use this method, the trainer must identify each question's point value in advance. For example, if five questions are asked, the trainer might assign 20 points per question or 100 points for the exam. The trainer then develops an answer that would earn the 20 points for each question. S/he also must determine point values for particular elements of each answer. Once all groups are finished, the trainer reviews their answer sheets and gives the grade for each question to each group member.

The exam situation is as follows. You're a small paving firm in its 5th year of operation. You are paving 11 miles of road in a rural setting. The contract calls for you to develop forms, deliver and lay asphalt, maintain all hazard-warning lights during paving operations, and to remove forms and place dirt up to and level off the new surface. Answer the following questions about reporting incidents that have occurred to personnel during this project.

1) At approximately 7:30 a.m., a flagger is struck by an oncoming motor vehicle. He sustains numerous minor injuries and is hospitalized for 5 days before being sent home for an additional 5 working days. What actions must be taken to investigate this injury properly?

2) At approximately 10:30 a.m., a laborer collapses on the ground near the jobsite. He is rushed to the hospital by ambulance. He has sustained a serious back strain from shoveling asphalt. The doctor notes that no previous back injuries have occurred. The employee spends 7 days in the hospital and receives therapy twice a week for 6 weeks. Doctors recommended that he not return to work for your organization. What actions must be taken to investigate this injury properly?

3) Five workers are injured in a motor vehicle accident at approximately 2:30 p.m. on a rainy afternoon. They were riding in the back of a company truck when it was struck from behind by an automobile driven by a local resident. All five workers received minor injuries; two spent 2 days in the hospital, two spent 3 days in the hospital, and one was treated and released. The driver's insurance company paid all medical expenses. What actions must be taken to investigate this incident properly?

The group exam provides experience in problem solving by requiring students to work as a group with give-and-take among members to arrive at a single answer. Each participant must pull his/her own weight in the group. During the exercise, the trainer should walk around and encourage each student to participate.

## Accelerated Learning

Accelerated learning involves providing students active learning opportunities that create knowledge and facilitate collaboration in the midst of activities. This process often "involves games, imagery and sometimes music focused on the results and not the materials or activities themselves" (Tapp, 2005). It involves the whole body and allows students to taste, smell, see and feel the activities to create a rich, memorable learning experience. This method also keeps students active and allows them to use imagery and bundling of concepts much more in line with how life really works (Tapp).

Tapp (2006) describes a game in which bingo cards feature answers to safety questions instead of numbers or letters. A caller reads off clues that are matched to these answers. When a student gets a row, column or diagonal line filled, s/he wins. "This game is fun, and gets everyone involved, but [it] includes accelerated learning principles, especially when you have small teams work on each bingo card instead of individually" (Tapp).

To ensure that students do not get too competitive or make too much noise, the trainer must limit discussion, set boundaries up front regarding negative comments about incorrect answers and call for lower voices if noise levels increase.

## Student Demonstrations: Show What They Know

Most students know something about the training topic before coming to class. A trainer can involve a student immediately by letting him/her demonstrate proficiency in a topic area while other students watch. If the student demonstrates the method properly, the trainer can recap and complete the lesson. If the demonstration is only partially correct, the trainer can identify the steps performed incorrectly (Fanning, 2009).

Allowing a student to participate in learning often results in reduced training time, provided the task is performed properly. What a trainer describes in 20 minutes, the student may demonstrate in 5 minutes. Furthermore, if a student does not know the method or does not demonstrate it properly, the trainer can stop the demonstration and correct the student. This method limits the trainer-to-student ratio to no more than 1:10, but the training often is better retained (Fanning, 2006).

For example, in a class about using a fire extinguisher, the trainer sets up a fire extinguisher and a small fire in a can. The trainer then asks whether any student knows how to use a fire extinguisher and would like to demonstrate that knowledge. A student steps forward and, under the trainer's supervision, demonstrates use of a fire extinguisher with some errors. The trainer stops the demonstra-

tion, shows the correct method and allows the student to continue. On the second try, the student demonstrates the method properly. The trainer asks whether everyone understands the demonstration and answers questions. Then, each student demonstrates the method until performed properly.

## Peer Coaching

One-on-one coaching is another concept that supports training transfer (Blair & Seo, 2007). This process involves a peer observing another employee at work, then making recommendations for improvement.

The two types of peer coaching are specific and nonspecific (Meyer & Gray, 1996). Specific peer coaching focuses on predetermined safety issues, while nonspecific peer coaching relies on an outsider identifying areas of improvement and commenting on an employee's general approach (Meyer & Gray).

Both approaches get results; however, using a coworker can be complicated due to preexisting friendships/relationships that might inhibit the coach from being open and unbiased. Often, a better approach is to bring in an outsider who can identify shortcomings without fear of hurting the relationship.

This method takes much more time than one class since it will occur over a longer duration. It is also difficult to evaluate. Thus, supervisors should establish performance standards followed by an evaluation and recommendations in the form of feedback delivered over time (weekly or monthly), not at the end of each task completed.

Consider this scenario. A supervisor notices that a new employee has made several mistakes which led to near misses. The supervisor is concerned that if left uncorrected, this worker will cause an incident. The supervisor speaks to the company safety trainer who recommends peer coaching. The supervisor agrees and speaks to another employee with proven knowledge of the safe way to perform the tasks; this employee agrees to coach the new employee.

The supervisor then speaks to the new employee and points out weaknesses; he recommends the peer coach and the employee agrees. The two employees meet and discuss the errors that led to near misses. The coach listens carefully to each episode, then asks questions about proper methods. Initially, he periodically checks on the employee throughout the week, and the two employees meet weekly to review any unsafe acts and corrective measures.

This continues for 6 months, over which time the coached employee's errors decrease. The team then reduces its checks and coaching sessions to biweekly for the next 4 months. This results in more improvement with less investment.

Finally, the two employees meet once per month for the next 2 months and agree to end the coaching relationship after 1 year. Throughout this coaching process, the supervisor provides quarterly feedback to both employees and notes that the unsafe employee is performing his tasks more safely with fewer near misses.

Given how much adults forget after training, trainers must focus on methods that ensure the best retention—learning that allows students to see, hear, say and do.

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### Guided Discussions

Guided discussion occurs when a trainer presents initial questions or concepts, but allows group learners to examine the topic (Dunsmore & Hausman, 2006). This method is useful when a trainer is trying to help students develop the ability to assess a situation and "think on their feet." Sharing experiences is useful and important in developing critical thinking, and internalizing and personalizing abstract concepts; however, discussions require that learners have some existing knowledge (Dunsmore & Hausman).

To properly use this method, a trainer must know how to guide the discussion to achieve the learning objective. S/he must facilitate the discussion by asking predetermined questions that move the discussion along a series of ideas which terminates in a summary of the learning objective.

To begin the discussion, the trainer asks an opening question, then allows students to talk. The trainer monitors conversation as students discuss the issues; if students discuss a question the trainer has not used, that question is taken out of use and the next question is used. To limit discussion that is not on point, the trainer must ask questions which direct students back to the topic.

Consider this example. A trainer is discussing Subpart D of 29 CFR 1926. He asks each student to take 10 minutes to review Subpart D. The trainer then asks a student to give a two- to three-sentence summary of the material. Next, the trainer asks for another opinion, then facilitates a short discussion. As the discussion draws to a close on that question, the trainer asks the next question, "What was your impression of this OSHA standard?" He follows the same process as with the first question and allows the group to explore the issue.

The trainer continues this pattern through two more questions. As students discuss the questions, the trainer walks around the room, listening to what is said and making sure all students participate. After all questions have been discussed, the trainer asks for any final comments and ends the session.

### Simulations

Simulations are a "training environment set up to produce a comprehensive 'workplace-like' experience" (Dunsmore & Hausman, 2006). This method requires a setting in which the student can perform in a nonthreatening environment under controlled conditions. It costs more and takes more time to set up and prepare, and the trainer must be able to conduct the simulation without error.

That said, costs can be reduced by using the method more than once; this is achieved by making a simulation a routine part of the training. And, although this method is costly, the learning produced likely will last for a long time because students immerse themselves in the learning experience. Generally, simulation is used for advanced training only.

For example, a simulation could be created about PPE needed to work in an area where small metal beams are being ground. A classroom is created with several workstations that simulate the grind-ing area. Each station includes various types of PPE. According to the training scenario, employees are grinding metal beams using a device with a noise level of 96 dB. The grinding process creates dust and an occasional particle. The work requires the employee to grind at waist level and the grinding may cause sparks.

After receiving this description, each student walks through the process of selecting PPE and assumes the grinding position. As soon as the student begins to grind, the trainer ends the simulation and tells each student what s/he did right and wrong. After the simulation is complete for all employees, the trainer identifies PPE selection errors, points out frequent errors in use of grinding equipment and explains spot corrections made. The session ends with final questions.

### Storytelling

"The single most effective training tool is telling relevant stories and having trainees reflect on them" (Blair & Seo, 2007). Storytelling can impart complex information in an understandable manner. Stories are integral to life and have great power to change or influence how people think or react (Cullen, 2007).

According to Cullen, the question is, "How does a trainer convince people, especially people with experience in an industry, and perhaps a long history of doing things unsafely, to do things differently?" A trainer must find that internal switch that responds to the question, "Why should I care about this information?" and answers, "Because is makes sense for me to care. It my save my life some day" (Cullen).

Cullen (2007) identifies four types of stories that can be used in training:

•Hero stories: larger than life character who saves another worker or prevents a crisis.

•Villain stories: villain who is opposite of the hero and causes the loss of life or crisis.

•Adventure stories: tell of a specific event with much drama.

•Fool stories: tell of a character who does things wrong and creates the loss of life or crisis.

Stories help trainees share experiences in an environment that allows them to make sense of the learning, which improves retention and understanding. However, a trainer must ensure that stories focus on and contribute to the learning objective. Therefore, a trainer should be ready to ask a question to refocus the discussion and help a student wrap up the story.

For example, a trainer discusses the importance of shoring trenches to prevent a cave in. Then, s/he asks whether anyone has experienced or witnessed a cave in. One student states that she worked with a foreman who died in a cave in. The trainer asks the student to share her story.

After the student completes her story, the trainer thanks her, then reinforces elements in the story that support the learning objectives and highlights specific points which students should remember.

The trainer then asks for another story. If no one responds, the trainer must have a story ready to

**Figure 1**
# Learning Game

| | P | L | O | T |
|---|---|---|---|---|
| Struck By | Protective glasses | | Over the ankle boots | |
| Punctured | | Leather gloves | | |
| Burned | | Leather chaps | | |

This game helps students connect two pieces of information to form a third. By forcing the student to only list PPE that begins with a specific letter s/he is required to think more.

deliver via CD, video or other media. Although this is not the best situation, it allows students to hear a story from a person who experienced the situation and they can hear from the voice or picture the situation's reality and emotion. Such "canned" stories should be a backup, however, not a primary source. Whenever possible, the primary source should be a student in the class.

## Student Responses to Review Questions
### Sticky Note Under Chair

A trainer can add action to a lecture. For example, a trainer can speak on a topic for part of the session, then have students answer review questions on the material covered. Prior to the class, the trainer needs to develop questions with answers. S/he then places numbers on sticky notes and places them under students' chairs (Fanning, 2009). After the lecture wraps, the trainer asks the students to stand, stretch and look under their chairs, where they find the numbered sticky notes.

The trainer then hands out review questions and tells students they need only answer one question each—the one that corresponds to the number on the sticky note. He also explains that they should write down the answer to each question as the other students announce them. The trainer gives students 5 minutes to think about their answers, then calls on the student with the number one to stand up and share his/her answer. This continues until all questions have been answered.

This method requires preplanning as well as an investment in sticky notes. The trainer must ensure that the notes are placed under seats that are used and make sure the numbers correspond to review questions.

The method allows students to move around, laugh and joke. It also helps students recall the information as they hear it explained a different way by others. If the method is not supervised properly, students may get rowdy or make too much noise. To prevent these behaviors, the trainer must limit discussion, set boundaries up front and call for lower voices if noise levels increase.

### Pop Culture Quiz

A pop culture quiz is another method to liven up a lecture. The trainer can speak on a topic for part of the class, then have students answer review questions on the material covered. Before the class, the trainer develops the review questions with answers. She also develops a list of questions from popular culture; this list can include questions from TV shows, music, current events or sports.

After the lecture ends, the trainer asks students to stand and stretch, then get ready to test their knowledge on pop culture. The trainer hands out review questions and tells the students they only

have to answer one question each, based on being selected by a classmate who answers a question about pop culture. She also explains that students should write down the answer to each question as others announce it.

After giving students 5 minutes to prepare, the trainer reads the first pop culture question and asks who knows the answer. A student raises his/her hand and gives an answer. The student answers correctly and picks a classmate to answer review question number one. This continues until all questions have been answered.

This method requires some preplanning and time to write the pop culture questions. The trainer also must ensure that the questions are known to students. As with several other training methods, this method allows students to move around and joke with each other. It also helps students recall the information as they hear it explained in different ways by others. Again, care must be taken to keep the discussion focused and the noise level low.

## Plot the PPE

In this learning game, a student identifies the PPE that would have protected the employee (Tapp, 2006). The games consist of a 4 x 5 matrix with three categories of injuries down the left side; across the top in the four columns the letters P, L, O and T are added (Figure 1). Students are given a matrix and a time limit to list the PPE which corresponds to each injury category in a row that begins with the letter for that column (Tapp). The person with the most items listed wins.

This game will allow students to connect two pieces of information to form a third. By forcing the student to only list PPE that begins with a specific letter s/he is required to think more. As with most games, the trainer must ensure that the game does not waste time or take longer than expected.

## Student-Centered Learning

In student-center learning, the trainer asks participants at the beginning of the session what they hope to receive in the training, then tailors it to their needs (Kelly, 2006). Tapp (2006) describes a learning activity called competitive confidence, "a competitive team game where teams predict how well they learned the content of the training class."

Before presenting a session on working overhead, the trainer develops 30 test questions based

on the material that will be covered. She divides the questions into groups of 10 and puts each group on a separate sheet and makes a copy of each set for each group. She also develops an answer key for each set of questions. On the day of training, the trainer begins by breaking the class into five groups of four. She then asks each group how many questions its members think they will get right. She records the answers for all to see, then hands one set of 10 questions to each group and gives each group 5 minutes to answer the questions.

After the questions are answered, the trainer reviews the answers and asks each group how many answers it got correct. The trainer then writes these scores next to the number each group thought it would get correct. She compares the numbers, and the group closest to its prediction wins. The trainer then proceeds with the lesson plan, emphasizing those topics that scored the lowest in the questions. This type of learning may take longer than just telling the students; however, learning is retained by students longer with better understanding.

For learning to have meaning, activities should be organized to allow participants to discover concepts for themselves, which is not always an easy task (Robotham, 2001). Furthermore, such activities can go off track if the trainer is not familiar with facilitating. Therefore, the trainer should ask predetermined questions that move the discussion along a series of ideas that terminates in a summary of the learning objective. The trainer also must limit discussion that is not on point.

### The Trainer "Wanna-Be"

Often, a trainer will be confronted by a student who wants to comment on everything, answer every question and essentially instruct the course. This is a "trainer wanna-be" (Klane, 2005). However, as Klane explains, "Not only is student participation directly related to increased retention and learning, but also students teaching each other is associated with the greatest levels of retention."

So, allow students to teach classes whenever possible while being aware of potential problems. For example, a student may know nothing about a subject and could lead the class astray. Or, the student-trainer may take too much time, which limits instruction in other areas.

To make the most of this approach, the trainer must be an experienced facilitator. S/he can ask predetermined questions that move the wanna-be along a series of ideas that terminates in a successful lesson. The trainer also must limit discussion that is not on point.

Consider this scenario. A trainer discussing trip and fall hazards is interrupted by a student who knows the material and has a good grasp on how to prevent and control trips and their associated falls. The trainer asks the student two questions and after s/he answers successfully, the trainer asks the student whether s/he would like to cover the rest of the topic area. The student jumps at the chance and is cheered on by fellow trainees. The student stands at the front of the class and recounts all the appropri-

ate material on the particular area of floor openings, then returns proudly to his/her seat. The trainer thanks the student for doing a wonderful job, wraps up the discussion and moves on to the next topic.

### Conclusion

Training must be designed to "give it to them so they get it" (Bowman, 2003). Many adults sit through classes waiting for some expert to provide all the answers to challenging safety hazards, yet often take away little from the training. Using the methods described, any SH&E professional can be a trainer who delivers better results and ensures that students "get it." **PS**

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