Chapter 14: System Safety Training

14.0 System Safety Training[1]

System Safety Training is one of the key elements within a System Safety Program. To conduct a successful program participants should be trained in appropriate concepts, duties, and responsibilities associated with system safety. Specific training is required for management, system safety working group members, safety teams, inspectors, controllers, technicians, engineers, anyone conducting activities within the program. Training will also be required as an administrative control to eliminate or control risk to an acceptable level.

This section provides guidance to a system safety trainer to successfully conduct a systematic safety training activity. Specific topics discussed include Training Needs Analysis, Task Analysis, Learning Objectives, Learning Behaviors, and Delivering Effective Safety Training.

14.1 Training Needs Analysis

The first step in preparing to train a group is to perform a training needs analysis. A training needs analysis is a thorough study of an organization to determine how training can help the organization to improve its safety, effectiveness, and efficiency and/or meet legal obligations. It is essential to the success of training programs. Many trainers who do not perform a training needs analysis find that sometimes their program is quite successful, but other times the same program delivered in the same way by the same trainer is vaguely unsuccessful. The reason is that no two training groups are exactly alike. Training needs, level of motivation, educational background, and many other factors can affect the training environment. Therefore, the trainer must be able to assess training needs and adapt the training accordingly. Some of the crucial factors are discussed below.

Safety training plays a vital role in a system safety program. The trainer must assess the needs in which he/she is going to provide training with the following questions in mind (all of which are important):

What is the extent of system safety knowledge of the participants within the organization?
What are the participant's tasks that involve system safety knowledge?
What are the background, experience, and education of the participants?
What training has been provided in the past?
What is the management's attitude toward system safety and training?
Is training being provided to management, or system safety working group participants?
Will participants be trained in hazard analysis?

14.1.1 Training Standards

Often trainers are overwhelmed by what seems to be a maze of interrelated regulations pertaining to system safety, occupational safety, and environmental training requirements. The regulations may change. Amid the confusion, it is often difficult to know how to get started.

[1] Bob Thornburgh, President of Environmental Services, Inc.; Presentation at 15th International Systems Safety Conference, Wash. D.C., Aug. 1997

Here are some guidelines for bringing the organization into compliance with safety training requirements:

- ***Read the pertinent regulations.*** The regulations are often difficult to comprehend, and it may be necessary to read them several times. However, whoever has primary responsibility for safety training should read them rather than rely solely on other people for interpretation.
- ***Attend professional development workshops and talk to colleagues.*** In addition to reading the regulations, the trainer should attend professional development workshops and talk with colleagues and regulatory personnel to stay current and to share implementation strategies.
- ***Work with management to set training priorities.*** After analyzing requirements and safety training needs, management and the training unit must meet to set safety training priorities and to develop a training calendar.
- ***Design, deliver, and evaluate systematic instruction.*** Most regulations state training requirements in terms of hour requirements and topics. The trainer must translate the requirements into a systematic plan of instruction, including learning objectives, instructional strategies, and evaluation methods. This Chapter provides the fundamentals for designing safety-training programs, but does not cover basic information on delivering or evaluating safety-training programs.
- ***Document training.*** Documentation of training is an essential ingredient of all training, and is especially crucial for safety training. Inspectors usually review documentation, and documentation is often used as evidence of good intent on the industry's behalf. With easy storage of information available through computers, many companies are maintaining safety-training records over the life spans of their personnel. They are also asking employees to verify with a signature that safety training has been delivered.

14.1.2 Expectations from Training

Take some time "up front" to pinpoint the expectations of the organization you are going to train. Determine how much support there is from the management team. Determine their training objectives. Then, talk with representatives from the target audience, the group you will be training, to determine their objectives and expectations. Also, survey representatives from the subordinates the target audience supervises; in order to gain another perspective on safety training needs. This part of the needs analysis does not have to be formal. Often a tour provides an opportunity to ask questions, listen, and assess expectations. The ability to listen is very important, because people will often volunteer information to a skilled listener.

Once you have determined the training expectations, put down the training objectives in writing and secure consensus from the organization. If the expectations are unrealistic, then they should be discussed.

Unrealistic expectations are usually a result of a failure to understand what constitutes effective training. A common example is a request to train 200 people with a wide variation in knowledge of background information and need-to-know. Look for creative solutions to this problem, such as several safety-training

sessions for different groups, the use of several safety trainers, the use of multiple teaching strategies, and/or multi-media, etc.

Another example of an unrealistic expectation might be a request to have training at 7:00 a.m. on Saturday with no additional pay for workers who have just worked a shift from 11:00 p.m. to 7:00 a.m. It is easy to anticipate a problem in motivating the group. Be sure to set appropriate times and dates.

Another type of unrealistic expectation that is even more serious, results from a request to minimize dangers, encourages shortcuts, or overlook hazards. Deliberately misinforming trainees could result in liability for the trainer. Therefore, the trainer should feel comfortable with the philosophy and practices of the organization. On rare occasions, trainers elect to walk away from training opportunities rather than compromise their personal training standards. Normally, however, organizations are supportive when the trainer explains how the training will promote effectiveness, efficiency, and safety.

14.1.3 Problem Analysis

There are several types of problems that can affect the performance of an organization and the safety training environment. The trainer should try to determine the causes of the deficiencies and tailor the training to the needs of the organization. For example, when workers and/or managers are motivated to perform well but lack skills or knowledge, an ideal training opportunity exists. Safety training usually can fill the gap of knowledge that exists if learners have pre-requisite skills and knowledge and are given sufficient instruction.

14.1.4 Audience Analysis

A crucial step in a safety training needs analysis is to analyze the target audience. The safety trainer should determine the general educational background of the audience, their job duties, their previous training history, their length of employment, the general emotional climate of the organization, behavioral norms, and attitudes toward training. It is vital to determine whether trainees have mastered pre-requisite skills and knowledge in order to target training appropriately.

14.2 Task Analysis

Once the safety training needs analysis has been completed, management and the trainer should have agreed on overall training objectives - the skill or knowledge areas where training is needed. The next step in the process of designing safety training is to perform a task analysis. The primary purpose of a task analysis is to prepare a sequential listing of all the steps necessary to perform a specific job skill. A task analysis is important for several reasons:

- It helps the trainer to be methodical and to organize training in a logical sequence.
- Not all steps in the task will necessarily require training. However, the safety trainer and trainee in context of the “big picture” can see those steps that do require training.
- The safety trainer becomes familiar with the task, can incorporate graphic examples into safety training, can relate better to the trainees, and can enhance credibility as a knowledge expert.
- Trainers who are already very familiar with the task benefit from performing a task analysis because they think through “common sense” steps they might overlook otherwise, but which need to be included in safety and environmental training.

- During the task analysis, the safety trainer often identifies environmental constraints and/or motivational problems as well as problems with lack of skills and knowledge. If the trainer can assist management in resolving environmental constraints and/or motivational problems, barriers to effective training will be reduced.
- The safety trainer determines pre-requisite skills and knowledge needed to perform the task so that training can begin at the appropriate level.

There are several ways to begin a task analysis, depending upon the safety-training situation:

- The safety trainer can observe the task being performed. This is an excellent method for analyzing routine tasks. It may not work as well for tasks such as emergency procedures that are rarely, if ever, performed under normal circumstances.
- The safety trainer can interview one or more workers who perform or supervise the task. ***Once a task inventory has been developed, it should always be reviewed and validated by job incumbents.***
- The safety trainer may be able to perform the task, develop a task inventory, and submit it for review and validation by job incumbents.
- Some tasks have prescribed steps that are outlined by the policies and procedures manual. It is always important to review this manual so that the training and the written policy and procedures are properly aligned. However, the safety trainer should be alert to situations where actual practice varies from written policy.

14.3 Learning Objectives

A learning objective is a brief, clear statement of what the participant should be able to do as a result of the safety training. The groundwork for the learning objective has already been laid once a thorough task analysis has been completed. A task analysis describes all the steps involved in a skill. The learning objectives focus just on the steps to be included in the training session. Sometimes an entire task needs to be learned; sometimes only a portion of the task needs to be learned. A task analysis lists the behavior to be learned, a learning objective goes a step further by defining how well and under what conditions the task must be performed in order to verify that the task has been learned. Learning objectives are important because instructional strategies and evaluation techniques are an outgrowth of the learning objectives.

14.3.1 Guidelines for Writing Learning Objectives

Objectives are always written from the viewpoint of what the trainee or participant will do, not what the trainer will do.

Right: Participants will be able to repair a generator.
Wrong: Instructor will cover unit on repairing generators.

Verbs or action words used to describe behavior are as specific as possible. Words to avoid include popular but vague terms such as “know,” “learn,” “comprehend,” “study,” “cover,” and “understand.”

Right: Participants will be able to measure and record the concentration of Volatile Organic Compound (VOC) in a sample of ground water.
Wrong: Participants will learn about ground water sampling.

The desired behavior must be ***observable and measurable*** so that the trainer can determine if it has been learned.

Right: Participants will demonstrate the ability to don a respirator properly.
Wrong: Participant will know about respirators.

Objectives should be given orally and in writing to the participants, so that they understand the purpose of the training session.

14.3.2 Components of Learning Objectives

There are four components that need to be considered each time a learning objective is developed: Target audience, behavior, conditions, and standards.

Target Audience

The target audience (participants or trainees) must be considered because the same topic may be approached differently based on the background of the groups to be trained. The following examples of learning objectives describe the audience. In each learning objective, the target audience is highlighted.

New employees will identify evacuation routes from the facility.
System safety personnel will develop an emergency response plan.

When an entire training course is designed for a particular audience, often the audience is described only once in a blanket statement, such as the following: "This course is designed as a safety orientation for new personnel." Once the audience is established, then the audience component does not have to be repeated each time.

Behavior

The behavior component of the objective is the action component. It is the most crucial component of the objective in that it pinpoints the way in which trainees will demonstrate they have gained knowledge. Learning is measured by a change in behavior. How will trainees prove what they have learned? Will they **explain...**? Will they **calculate...**? Will they **operate...**? Will they **repair...**? Will they **troubleshoot...**? The highlighted verbs in the following examples indicate the behavior required.

- The emergency response team will ***build*** a decontamination chamber.
- Trainees will ***interpret*** the meaning of colors and numbers on Material Safety Data Sheet (MSDS) labels.
- System safety personnel with a minimum of five years' experience will ***develop*** an emergency response plan.

The behavior component should be easy to determine based on the task analysis, which was written in behavioral terms.

Conditions

The ***condition*** component of the objective describes special conditions (constraints, limitations, environment, or resources) under which the behavior must be demonstrated. If trainees are expected to demonstrate how to don a respirator in a room filled with tear gas rather than in a normal classroom environment, that would constitute a special condition. Please note that the condition component indicates the condition under which the behavior will be tested, not the condition under which the behavior was learned. Examples:

Right: ***Given a list of chemical symbols and their atomic structure,*** participants in beginning chemistry course will construct a Periodic Table of Elements. (This condition is correct; participants will be able to refer to symbols and atomic structure while they are being tested.)

Right: ***From memory,*** participants in an advanced course will construct a Periodic Table of Elements. (This condition is also correct; it outlines a testing condition.)

Wrong: ***Given a unit of instruction on the Periodic Table***, participants will then construct a Periodic Table of Elements. (This tells something about how the knowledge was learned, not a condition under which the knowledge will be tested.)

The condition component does not have to be included if the condition is obvious, such as the one in the following example:

Given paper and pencil, trainees will list the safety rules regarding facility areas. (The condition is obvious and does not need to be stated.)

Standards of Acceptable Performance

The standard of acceptable performance indicates the minimum acceptable level of performance - how well the trainee must perform the behavior indicated in the objective. Examples include percentages of right responses, time limitations, tolerances, correct sequences without error, etc. Examples:

The hazardous waste supervisor will calculate required statistics ***with an accuracy of plus or minus 0.001.***

Given a facility layout, the employees will circle the location of fire extinguishers ***with a minimum of 80% accuracy.***

Given a scenario of an emergency situation, employees will respond ***in less than three minutes.***

14.3.3 Types of Behavior in Learning Objectives

The next step is to identify the ***domains of learning*** - the types of behavior that can be described within objectives. Behaviors are categorized in one of these domains of learning: *cognitive, psychomotor, or affective.*

Cognitive behaviors describe observable, measurable ways the trainees demonstrate that they have gained the knowledge and/or skill necessary to perform a safety task. Most learning objectives describe cognitive behaviors. Some cognitive behaviors are easy to master; others are much more difficult. In designing safety and environmental instruction, trainers move from the simple to the complex in order to verify that trainees have the basic foundation they need before moving on to higher level skills. It is crucial to identify the level of knowledge required because knowledge-level objectives can be taught in a lecture session, and comprehension-level objectives can be taught with a guided discussion format. However, most training sessions are designed for trainees to apply the information and to solve problems. Therefore, participants need to achieve by doing; they need to be drilled on actual safety case problems.

This does not mean that the basic skills have to be re-taught if the trainer can verify through observations, pretests, training records, etc., that pre-requisite skills have been mastered. However, many training sessions have turned into a disaster because the trainer made the assumption that the trainees had mastered basic skills and began the training at too high a level. In contrast, some training sessions have bored the participants by being too basic. Therefore, it is important for safety trainers to be able to label learning objectives and design safety training sessions appropriate to the level of cognitive behavior required to perform a task. Following are descriptions and examples of types of cognitive behaviors.

Knowledge-level cognitive behaviors are the easiest to teach, learn, and evaluate. They often refer to rote memorization or identification. Trainees often "parrot" information or memorize lists or name objects. Common knowledge-level behaviors include action words such as these: identify, name, list, repeat, recognize, state, match, and define. Examples:

> Given containers of sample chemicals, the participants will ***identify*** the chemicals by name.
>
> Given a list of chemicals, health and safety personnel will ***state*** the properties of each.

Comprehension-level cognitive behaviors have a higher level of difficulty than knowledge-level cognitive behaviors, because they require learners to process and interpret information; however, learners are not required to actually apply/demonstrate the behavior. Commonly used action words at this level include verbs such as these: explain, discuss, interpret, classify, categorize, cite evidence for, compare, contrast, illustrate, give examples of, differentiate, and distinguish between. Examples:

> Participants will ***contrast*** the properties of acids and alkalis.
>
> All employees will be able to ***discuss*** the hazard communications training they have received.

Application-level cognitive behaviors move beyond the realm of explaining concepts orally or in writing; they deal with putting ideas into practice and involve a routine process. Trainees apply the knowledge they have learned. Some examples of action words commonly used in application-level cognitive behaviors include the following: demonstrate, calculate, do, operate, implement, compute, construct, measure, prepare, and produce. Examples:

The emergency response team will ***perform*** evacuation management.
Beginning machinists will ***measure*** stock with a micrometer within a tolerance of +/-0.001.
Workshop trainees will accurately ***complete*** an MSDS.

Problem-solving cognitive behaviors involve a higher level of cognitive skills than application-level cognitive behaviors. The easiest way to differentiate between application-level and problem-solving level is to apply application-level to a routine activity and problem-solving level to non-routine activities which require ***analysis*** (breaking a problem into parts), ***synthesis*** (looking at parts of a problem and formulating a generalization or conclusion), or ***evaluation*** (judging the appropriateness, effectiveness, and/or efficiency of a decision or process and choosing among alternatives). Some examples of action words commonly used in problem-solving cognitive behaviors include the following: troubleshoot, analyze, create, develop, devise, evaluate, formulate, generalize, infer, integrate, invent, plan, predict, reorganize, solve, and synthesize. Examples:

System safety personnel will ***develop*** an emergency response plan. Given a pump with "bugs" built in, maintenance personnel will ***troubleshoot*** the problems with the pump. Quality circle team will ***analyze*** the flow of production and ***devise*** ways to reduce work-in-process inventory.

There is no way to prepare a list stating that an action word is <u>always</u> on a certain level. The lists of example action words included in the discussion above are suggestions and are not all-inclusive. Safety trainers must use professional judgement to determine the level of cognitive behavior indicated. The same action word can be used on different levels. Example:

Photographers will develop film in a dark room using a three-step process. ***(Application level)***

R and D Department will ***develop*** a new process to coat film. ***(Problem-solving level)***

Psychomotor Behaviors

Learning new behaviors ***always*** includes cognitive skills (knowledge, comprehension, application and/or, problem solving). In addition, the trainer needs to be cognizant of psychomotor skills that may be required in the application phase of learning. ***Psychomotor*** behaviors pertain to the proper and skillful use of body mechanics and may involve gross and/or fine motor skills. Examples:

Warehouse personnel will ***lift*** heavy boxes appropriately.
Inventory personnel will ***enter*** data into computer at 40 words per minute.

Safety training sessions for psychomotor skills should involve as many of the senses as possible. The safety trainer should adapt the format of training to match the skill level of the learner and the difficulty of the task. Following is an example of a sound process for teaching psychomotor skills:

Example: **How to Don a Respirator**

Step 1: The safety instructor shows a respirator and explains its function and importance. (Lecture)

Step 2: The trainees explain the function and importance of the respirator. (Cognitive - comprehension level)

Step 3: The safety instructor holds up the respirator, names the parts, and explains functions. (Lecture/demonstration)

Step 4: The trainees hold up respirators, name the parts, and explain the functions. (Cognitive - knowledge and comprehension levels)

Step 5: The instructor explains and demonstrates how to don a respirator. (Lecture/demonstration)

Step 6: The trainees explain how to don a respirator while the safety instructor follows trainees' instructions. (Cognitive - comprehension level)

Important Note: Step 6 allows the safety instructor an opportunity to check for understanding and would be especially useful when one is teaching a task that could be potentially dangerous to the trainee or others or that involves expensive tools or equipment that could be damaged.

Step 7: The trainees don a respirator properly. (Cognitive - application level and psychomotor)

Step 8: Explain and practice; explain and practice; EXPLAIN AND PRACTICE. (Cognitive - comprehension and application levels and psychomotor)

The key to teaching psychomotor skills is that the more the learner ***observes*** the task, ***explains*** the task, and ***practices*** the task correctly, the better he/she performs the task.

Affective Behaviors

Affective behaviors pertain to attitudes, feelings, beliefs, values, and emotions. The safety trainer must recognize that affective behaviors influence how efficiently and effectively learners acquire cognitive and psychomotor behaviors. Learning can be influenced by positive factors (success, rewards, reinforcement, perceived value, etc.) and by negative factors (failure, disinterest, punishments, fears, etc.) Examples:

Supervisors resent training time and tell employees they must make up time lost. Employees develop negative attitude toward training.

OR

Supervisors explain the training could save lives, attend training with employees, and reinforce training on the job.

Employees are afraid of chemical spills and are anxious to learn how to avoid them.

OR

Employees have been told through the grapevine that the safety and training is boring and a waste of time. Employees have a negative attitude toward training.

Employees have just received a bonus for 365 accident-free days and have a positive attitude toward the company and toward safety training.

OR

The company announces 30 minutes before the safety training session begins that there will be a massive layoff. Training will probably not be a priority for employees today.

Other affective behaviors (attitudes and emotions) that must be considered go beyond positive or negative motivations toward learning. Examples:

An employee may have the knowledge and skills to repair an air conditioning system, but fear of heights causes him/her not to be able to repair a unit located on the roof.

An employee may know how to don a self-contained breathing apparatus, but panics when he/she does so.

Training objectives which state affective behaviors are usually much more difficult to observe and measure than cognitive behaviors. Nevertheless, they are crucial to the ultimate success of the safety-training program. Following are some examples of affective objectives:

Employees will demonstrate safety awareness by leaving guards on equipment and wearing safety glasses in designated areas.
Employees will demonstrate awareness of chemical flammability by smoking only in designated areas.
Employees will state in a survey that they appreciate safety-training sessions.

A critical factor to remember is that while training can stress the importance of affective behaviors, people are most influenced by the ***behavioral norms*** of an organization. Remember: Before attempting to make changes in an organization, it is first important to identify existing norms and their effects on employees. Behavioral norms refer to the peer pressure that results from the attitudes and actions of the employees/management as a group. Behavioral norms are the behaviors a group expects its members to display. Examples:

Although training may emphasize the importance of wearing a face mask and helmet in a "clean" room, if most employees ignore the rule, new employees will "learn" to ignore the rule as well. Although smoking and non-smoking areas may be clearly labeled in the plant, if new employees observe supervisors and "old-timers" breaking the rules, they will tend to perceive the non-smoking rule as not very important, despite what was stated in an orientation session. Although a new employee learns to perform a task well in safety training sessions, he/she will quickly change performance if the supervisor undermines the safety training and insists there is a better, faster way to do the job.

For safety training to be successful, it must have the support of all levels of management. Safety training does not occur in a vacuum. The organizational climate and behavioral norms, in fact, are likely to be more powerful than the behavior taught in safety training sessions, because the group can enforce its norms with continual rewards, encouragement, and pressure. Supervisors should see themselves as coaches who continue to reinforce safety training. Otherwise, the safety training is unlikely to have a long-term impact on the organization.

14.4 Delivering Effective Safety Training

One of the easiest and most fatal mistakes for a trainer to make is to approach the trainer-learner relationship as a teacher-child relationship. Certainly, most of the role models trainers have observed have been adults teaching children. However, it is essential for trainers to view themselves as facilitators of the adult learning process. Although no generalizations apply to every adult learner, it is helpful in planning training sessions to keep the following characteristics of adult learners in mind:

- Despite the cliché that "old dogs can't learn new tricks," healthy adults are capable of lifelong learning. At some point, rote memorization may take more time, but purposeful learning can be assimilated as fast or faster by an older adult as by high school students.
- Most adults want satisfactory answers to these questions before they begin to learn: "Why is it important?" and "How can I apply it?"
- Adults are used to functioning in adult roles, which means they are capable of and desirous of participating in decision making about learning.
- Adults have specific objectives for learning and generally know how they learn best. Delegation of decisions on setting objectives may help learners, especially managers, gain the knowledge and skills they really need.
- Adults do not like to be treated "like children" (neither do children) and especially do not appreciate being reprimanded in front of others.
- Adults like organization and like to know the "big picture."
- Adults have experienced learning situations before and have positive and/or negative preconceptions about learning and about their own abilities.
- Adults have had a wealth of unique individual experiences to invest in learning and can transfer knowledge when new learning is related to old learning.
- Adults recognize good training and bad training when they see it.

There are several guidelines to remember when one is designing adult training sessions:

- Early in the safety training session, explain the purpose and importance of the session.
- Share the framework (organization) of the safety learning session with the participants.
- Demonstrate a fundamental respect for the learners. Ask questions and really listen to their responses. Never reprimand anyone in front of others, even if it means taking an unscheduled break to resolve a problem.
- Acknowledge the learners' experience and expertise when appropriate. Draw out their ideas, and try not to tell them anything they could tell you. Do not embarrass them when they make mistakes.
- Allow choices when possible within a structured framework. Example: "For this exercise, would you rather work in pairs or individually?"

- Avoid body language that is reminiscent of an elementary school teacher, such as hands on hips, wagging a pointed index finger, etc.
- Do not "talk down" to participants; "talking down" results more from tone of voice and expression rather than from vocabulary.
- Maintain a certain degree of decorum within a classroom environment and mutual respect among learners.
- Should a mistake in information or judgment occur, admit it.
- Make sure everyone can see and hear properly and has comfortable seating.

14.5 Learning Styles

One of the pitfalls of instruction is that trainers tend to develop safety-training programs that accommodate the way the trainer learns best, not the way the participants learn best. For example, if the trainer learns best by reading, he/she tends to give a manual to the new employees and expects them to master the procedure by reading the manual. If the trainer learns best through experimentation, he/she tends to throw employees into a new situation with little guidance. It is important to emphasize individual growth rather than competition and to remember that individuals have different learning styles with which they are most comfortable. Every trainee is different and must be treated as an individual. Here are some examples:

Passive Learners learn best by:

Reading manuals/books
Watching audio-visual presentations
Hearing a lecture
Observing demonstrations

Active Learners learn best by:

Participating in discussions
Role-playing
Performing an experiment
Taking a field trip
Hands-on learning
Responding to a scenario
Making a presentation

Some learners prefer to learn by themselves; others prefer to work in-groups. Some people need a lot of organization and learn small steps sequentially; others assimilate whole concepts with a flash of insight or intuition.

Some people are very visual and learn best through drawings, pictorial transparencies, slides, demonstrations, etc.; others learn best through words and enjoy reading transparencies and slides with words, and lectures.
Increased retention results from what we know of split hemisphere learning. Just as different sides of the brain control opposite sides of the body, so does the brain absorb and record different types of information:

a. Left side — Linear functions, logic, time, reasoning, language, and writing.

b. Right side — Space, movement, emotion, facial recognition, music, depth perception.

It is the combination of the effects of both sides that allows us to think and react to information.

Although various tests have been developed to try to identify how people learn best, they are not practical for most safety training sessions. Rather, the trainer needs to be aware that differences in learning styles exist and try to combine as many types of activities and media as possible so that learners can have access to the way they learn best and also learn to adapt to other learning styles as well. That means that a safety training session might include a handout for readers, a lecture for listeners, and an experiment for doers, depending on the objective.

The key to accommodating learning styles is that instructional strategies and media be selected as a means to help the learner and not as a convenience for the instructor. For example, a new employee orientation pamphlet and videotape should be selected if they prove to be an excellent instructional strategy for teaching new employees; they should not be selected just because they are a convenient means of orientation. Also, the safety trainer should constantly look for alternate strategies and media so that if one strategy or type of media is ineffective, the safety trainer has multiple strategies from which to select.

14.6 Sources for System Safety Training

FAA Academy

FAA Training Office

FAA Office of System Safety, System Safety Engineering and Analysis Division

International System Safety Society