

Best Practices in Instructional Technology


Dan Snyder, M.Ed, CET, CSP, CHMM





Presentation Outline

This session will discuss the current best practices for instructional technologies for delivering environmental safety and health training in various workplace environments. The presenter will discuss how to improve training delivery by discovering and implementing appropriate instructional design based on the learning objectives and audience needs. Topics include:

- Adult Learning Principles
- Instructional Strategies
- Instructional Media
- Delivery techniques
- Trainer competencies






Why train?



Training bridges the gap between what trainees already know and can perform safely and correctly

-and-

What trainees should know and perform safely and correctly on a consistent basis.



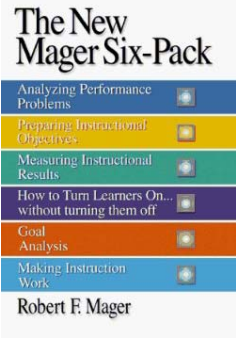
Training Addresses: Skills, Knowledge and Abilities



STEPHANIE KLEIN-DAVIS | The Roanoke Times
Melissa Williamson, 35, a Bullitt Avenue resident, worries about the effect on her unborn child from the sound of jackhammers.

The ADDIE Model


- Analyze
- Design
- Develop
- Implement
- Evaluate



Why use a "Training Needs Analysis?"

Systematic Approach to Training: (SAT Model)

- Need Analysis
- Learning Objectives
- Training Plan
- Course Design
- Criteria for Completion
- Evaluation Strategies



Target Audience Analysis

Attempt to determine:

- Why do they need the training?
- Do they want to be in the course?
- Educational background?
- Other learning challenges?



Problem Analysis

Performance Problems:

- Lack of skills/knowledge
- Lack of motivation
- Environmental constraints



Why is a Task Analysis important?

- Teach the same steps in the same order consistently
- Inventory of information
- Logical sequence of steps
- Identifies:
 - All of the steps
 - Any problems
 - Any prerequisite skills/knowledge



Performance Objectives

Definition:

- A clear, brief statement
- What the participant should be able to do as a result of training
- Not how the trainer will conduct the course!
- Foundation of training



Guidelines for Writing Performance Objectives

- Written from the **participant's** viewpoint
- **Specific** language
- **Measurable** (all learning is measured by a change in behavior)



Guidelines for Writing Performance Objectives

- **Observable** – must use action verbs (e.g., *list, describe, conduct, explain, etc.*)
- Avoid vague verbs (e.g., *know, understand, learn, be familiar with, etc.*)
- Learning is measured by a change in behavior, so focus on the verb!

Active vs. Reflective Learners

- **Active participants** tend to “jump in” and learn by doing
- Learn best by:
 1. Performing experiments and hands-on exercises
 2. Simulations and scenarios
 3. Making presentations
 4. Leading small group exercises
 5. Role play
 6. Scenarios and drills


Active vs. Reflective Learners

- **Reflective observers** tend to process and “take in” the information
- Learn best by:
 1. Reading various information
 2. Watching audio-visual presentations
 3. Listening to lectures and discussions
 4. Observing demonstrations

What Learners Want to Know...


Training must answer these four (4) questions:

1. Why is this topic important?
2. What do I need to know?
3. How does it work?
4. How do I apply this information?

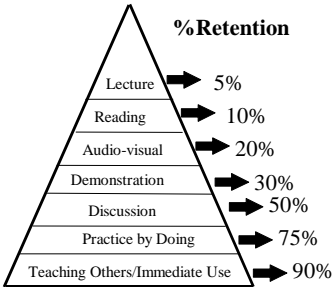



Type of Instructional Strategies

- Lecture
- Guided Discussion
- Demonstration/Practice
- Role Play
- Participant (Learner) Discovery
- Individual/Participant Instruction



The Learning Pyramid






Type of Instructional Strategies

Strategy	Communication	Objectives
Lecture	One-way (good for introductions and summaries)	Cognitive Knowledge
Guided Discussion	Two-way, shared (managed by instructor)	• Cognitive-Comprehension • Cognitive-Problem Solving
Demonstration/Practice	“Show & Tell” followed by participants’ practice	• Cognitive-Application • Psychomotor
Role Play	Participants act out or read scripts regarding scenarios	• Cognitive-Application • Cognitive-Problem-Solving
Participant (Learner) Discovery	Participant researches a topic & draw conclusions (while trainer facilitates)	Cognitive-Problem Solving
Individualized Instruction	Participant reads or completes assignments on the computer	Most types of objectives

Training Aids

- Training Aids
- Subject Matter Experts (SMEs)/Guest Speakers
- Games and Gimmicks
- Still Pictures/Photographs
- Presentation Slides
- Interactive multi media/Internet/LMS
- Easel Pads, Blank Transparencies, and Dry Erase Board
- Audio Media
- Written Materials
- Computers
- Learning Management System
- Drawings and Pictograms
- Games and Activities
- Imagery



USGRF-HS-F21

SAFETY LEARNINGS ALERT

WHAT HAPPENED?
 [Enter a description of the incident, including injuries, illnesses and property damage if any. The facility type and/or location can be indicated if relevant. Adjust the font size if necessary to fit the text you want]

Insert a Picture

WHAT ARE THE ROOT & CONTRIBUTING CAUSES?
 [Enter the contributing causes and the root cause identified through the incident investigation process. Provide a brief explanation of each.]

HOW CAN THIS BE PREVENTED IN THE FUTURE?
 [List each of the corrective actions and lessons learned from this incident.]

Created By: [Enter Name] Date Created: [Enter Date]
 Phone: [Enter Phone] Department: [Enter work Area]
 Email: [Enter email] Plant: USGRF

Zero Injuries

USGRF-HS-F21

NEAR MISS ALERT

INCIDENT DESCRIPTION

Insert a Picture if at all possible

WHAT ARE THE FACTS AS WE KNOW RIGHT NOW?

WHAT IMMEDIATE ACTIONS SHOULD BE TAKEN?

Created By: [Enter Name] Date Created: [Enter Date]
 Phone: [Enter Phone] Department: [Enter work Area]
 Email: [Enter email] Plant: USGRF

Zero Injuries

USGRF-HS-F21

INJURY FIRST ALERT

INCIDENT DESCRIPTION
 Employee had gel coat hose over his shoulder, he went to move the hose from behind him with his foot, when he stumbled over the hose And felt a pain in his upper back.



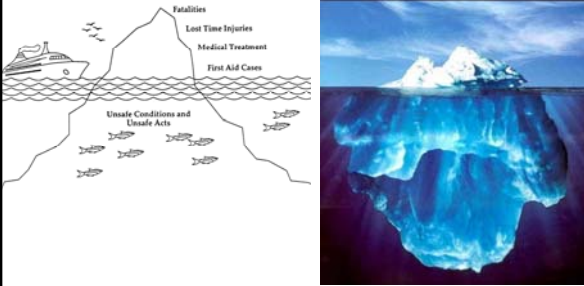
WHAT ARE THE FACTS AS WE KNOW RIGHT NOW?
 The employee went to the ER and will follow up with a Dr. today.

WHAT IMMEDIATE ACTIONS SHOULD BE TAKEN?
 Before trying to move an object from behind you, you should look to see where it is.


Created By: Sonora McLean Date Created: 3-18-12
 Phone: 315-338-5952 Department: modeling
 Email: sonora@mcleanpower.com

Zero Injuries

The Iceberg Imagery of Hazard/Risk



Power of Imagery



Selecting Criteria

Trainers must match the Instructional Strategy to the:

1. Performance Objectives
2. Target Audience
3. Situation
4. Trainer's Own Comfort Level



Case Studies



Case Study: JIT-JET



Coaching for Improvement



Managing the Physical Environment

- Media Toolbox
- Preparation of training room
- Seating arrangements
- Media equipment (1:6 ratio screen width vs. feet from screen)
- Identification of participants
- Know location of emergency exits & restrooms



Trainer Competencies

ANSI Z490.1-2001

International Board of Standards for Training,
Performance and Instruction (IBSTPI)



ANSI Z490.1-2001

This workshop incorporates the ***Implementation Guide for American National Standard (ANSI) Z490.1-2001***

- Sets criteria for accepted practices in safety, health, and environmental training
- Standard developed by the American Society of Safety Engineers (ASSE)
- Implementation guide developed by NESHTA (National Env., Safety, and Health Training Assoc.)

ANSI Z490.1-2001 – Cont'd

Purpose of the ***Implementation Guide***:

- Provides concepts, suggestions, and worksheets to develop training that meets criteria of the Standard
- States sound training principles that can be applied to safety, health, and environmental training

Competencies

1. **Do your "homework"** (*know your audience and their training needs*).
2. **Write clear objectives** and design your training materials around them.
3. **Design training with hands-on activities** (*for more participant involvement*) **and imagery** (*to illustrate concepts more than just text*).
4. **Deliver training with a variety of training strategies** to keep the audience interested and involved.

Instructor Competencies

– Professional Foundations

- Communicate effectively.
- Update and improve ones professional knowledge and skills.
- Comply with established ethical and legal standards.
- Establish and maintain professional credibility.

– Planning and Preparation

- Plan instructional methods and materials.
- Prepare for instruction.

Instructor Competencies

– Instructional Methods and Strategies

- Stimulate and sustain learner motivation and engagement.
- Demonstrate effective presentation skills.
- Demonstrate effective facilitation skills.
- Demonstrate effective questioning skills.
- Provide clarification and feedback.
- Promote retention of knowledge and skills.
- Promote transfer of knowledge and skills.

Instructor Competencies

– Assessment and Evaluation

- Assess learning and performance.
- Evaluate instructional effectiveness.

– Management

- Manage an environment that fosters learning and performance.
- Manage the instructional process through the appropriate use of technology.

Instructional Designer Competencies

– Professional Foundations

- Communicate effectively in visual, oral and written form. (Essential)
- Apply current research and theory to the practice of instructional design. (Advanced)
- Update and improve ones knowledge, skills and attitudes pertaining to instructional design and related fields (Essential)
- Apply fundamental research skills to instructional design projects. (Advanced)
- Identify and resolve ethical and legal implications of design in the work place. (Advanced)

Instructional Designer Competencies

– Planning and Analysis

- Conduct a needs assessment. (Essential)
- Design a curriculum or program. (Essential)
- Select and use a variety of techniques for determining instructional content. (Essential)
- Identify and describe target population characteristics. (Essential)
- Analyze the characteristics of the environment. (Essential)
- Analyze the characteristics of existing and emerging technologies and their use in an instructional environment. (Essential)
- Reflect upon the elements of a situation before finalizing design solutions and strategies. (Essential)

Instructional Designer Competencies

– Design and Development

- Select, modify, or create a design and development model appropriate for a given project. (Advanced)
- Select and use a variety of techniques to define and sequence the instructional content and strategies. (Essential)
- Select or modify existing instructional materials. (Essential)
- Develop instructional materials. (Essential)
- Design instruction that reflects an understanding of the diversity of learners and groups of learners. (Essential)
- Evaluate and assess instruction and its impact. (Essential)

Training Manager Competencies

– Professional Foundations

- Communicate effectively in visual, oral and written form.
- Comply with established legal and ethical standards.
- Maintain networks to advocate for and support the training function.
- Update and improve professional and business knowledge, skills, and attitudes.

Training Manager Competencies

– Planning and Analysis

- Develop and monitor a strategic training plan.
- Use performance analysis to improve the organization.
- Plan and promote organizational change.

– Design and Development

- Apply instructional system design principles to training projects.
- Use technology to enhance the training function.
- Evaluate training and performance interventions.

Training Manager Competencies

– Administration

- Apply leadership skills to the training function.
- Apply management skills to the training function.
- Apply business skills to the training function.
- Implement knowledge & management solutions.

Evaluator Competencies

– **Professional Foundations**

- Communicate effectively in written, oral, and visual form.
- Establish and maintain professional credibility.
- Demonstrate effective interpersonal skills.
- Observe ethical and legal standards.
- Demonstrate awareness of the politics of evaluation.

Evaluator Competencies

– **Planning and Designing the Evaluation**

- Develop an effective evaluation plan.
- Develop a management plan for the evaluation.
- Devise data collection strategies to support the evaluation questions and design.
- Pilot test the data collection instruments and procedures.

Evaluator Competencies

– **Implementing the Evaluation Plan**

- Collect data.
- Analyze and interpret data.
- Disseminate and follow-up the findings and recommendations.

– **Managing the Evaluation**

- Monitor the management plan.
- Work effectively with personnel and stakeholders.




Certified Environmental Health & Safety Trainer (CET)



www.bccsp.org



www.safetyconsultants.org

Daniel J. Snyder, CSP, CET, CHMM, OHST, CHST, STS

Mr. Snyder served as an Army Military Intelligence operative and holds a B.A. in Science and Biology and a M.Ed. in Adult Education and Human Resource Development. Leading a team as part of the National Response Framework implementing disaster site worker all hazards training in the field, he is an accomplished Safety Liaison during disaster response and recovery operations. Mr. Snyder is a Past-President of the Arkansas Chapter of ASSE, Past-President of the Greater Ozark AHMP Chapter, and former Director for the National Safety Council's Ozark chapter and Past-President of the Board of Directors for the Alliance of Hazardous Materials Professionals. With over 20 years of global consulting experience and owner of Performance Based Safety, LLC, Daniel partners with clients to develop strategies for improving safety and health management systems, conduct workplace evaluations, facilitate research to improve safety performance, and design customized educational curriculum. As owner of SPAN International Training, LLC, and a recognized environmental, safety and health professional, he demonstrates expertise in the technical subject matter of certification exam blueprints and is a recognized psychometrician, curriculum designer, and facilitator of applied adult learning principles. Mr. Snyder is dedicated to advancing environmental, safety and health professional development by offering world class certification exam preparation products that enable professionals to meet the challenge of illustrating competency through education, experience, and examination.

Please feel free to contact via email :

dnsnyder@safetyconsultants.org

dnsnyder@spansafetyworkshops.com



Questions?

Daniel J Snyder, M.Ed, CSP, CHMM, CET

dnsnyder@safetyconsultants.org