Training and Professional Development Challenges for Fire and Emergency Services Leaders

TPDCFESL-Student Manual

3rd Edition, 5th Printing-May 2024

FEMA

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May 2024
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ACKNOWLEDGMENTS

The development of any National Fire Academy (NFA) course is a complex process aimed at providing students with the best possible learning opportunity we can deliver.

There are many players in course development, each of whom plays an equally important part in its success. We want to acknowledge their participation and contribution to this effort and extend our heartfelt thanks for making this quality product.

The following people participated in the creation of this course:

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COURSE GOAL

The goal of this course is to empower managing officers to lead in the analysis, development, implementation, and evaluation of training components so they are positioned to influence stakeholders.

AUDIENCE, SCOPE AND COURSE PURPOSE

Managing Officer Program candidates who meet the requirements of National Fire Protection Association (NFPA) 1021, *Standard for Fire Officer Professional Qualifications* requirements for Fire Officer I, or the requirements for company/unit/supervisory officer by the authority having jurisdiction (AHJ), and the candidate shall be serving in the capacity of Supervising Officer. Candidates shall have completed a course of instruction equivalent to Fire Instructor I and be capable of instructing at the company level from a prepared curricula.

Secondary Audience: Candidates are leaders at the company level in either an EMS or fire service organization.

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GRADING METHODOLOGY

Evaluation Method	Percent of Final Grade
Pre-course Assignment	20%
Training Design Plan	30%
Executive Presentation Paper	20%
Peer Review	10%
Final Presentation	20%

A minimum, cumulative grade of 70% is required for successful completion of this course. **A score of zero on any assignment will automatically result in course failure.**

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PRE-COURSE TRAINING NEED ASSIGNMENT INSTRUCTIONS AND RUBRIC

The pre-course needs assessment paper will identify, describe, and justify a training need in each student's organization. This assignment is the foundation for future assignments. Students will write the paper for the target audience of course instructors, who will review and identify any strengths or weakness prior to the start of other assignments. **The paper should be approximately five (5) pages in length and is due the Friday prior to the first day of class.** If a student's department has a specific template for training needs assessment, a student may request permission of the Training Specialist to utilize that template for this paper.

Criteria	**Ratings**		
	15 points	**10 points**	**5 points**
Training Gap Defined	Evidenced understanding and critical thinking by describing a training gap that currently exists within the department: • Gap is succinctly stated by presenting the performance problem and proposed solution in the introductory paragraph. • Performance problem is defined within the body of the paper and supported by at least 2 forms of data. • At least 3 potential barriers to training success are identified and discussed in the paper summary.	Marginal comprehension/ effort: • Gap is explained by presenting the performance problem and proposed solution in the introductory paragraph. • Performance problem is defined within the body of the paper and not supported with at least 2 forms of data. • 1-3 potential barriers to training success are identified and discussed.	Limited comprehension/ effort: • Missing a connection of performance problem to training. OR • Performance problem is not defined. OR • Failed to identify potential barrier.
	10 points	**5 points**	**0 points**
Quality of Writing	Effective writing/communication skills: • Focus is clear and well established throughout the assignment. • A logical progression of ideas was presented. • No errors (or a single minor error) in punctuation, grammar, and spelling. • Demonstrated professional communication and writing skills that could be applied in an official report.	Marginal writing/ communication skills: • Focus is somewhat clear and connects problem and solution. • Lacks clear analysis or support. • Major or multiple errors in punctuation, grammar, and spelling.	Limited writing/ communication skills: • Lacks clear focus. • Multiple, major punctuation, grammar, and spelling errors. • Writing lacked professional tone.
Score/Grade	***25 = A 20 = B 15 = C below 15 = F***		

Credit applied to final course grade	
+5 points	**-1 point per deficiency**
Follows verbal and written instructions regrading format of pre-course paper: • Paper written in formal, third person. • Paper addresses a performance gap directly linked to a training deficiency. • Source citation follows APA format. • Paper is not an APA formatted research paper. • Paper does not follow APA heading and seriation formatting.	Does not follow verbal and written instructions regarding format or pre-course paper: • Paper follows APA heading and seriation formatting. • Paper is written as an APA formatted research paper. • Paper contains a running head. • Paper contains an abstract section. • Paper contains a literature review section. • Paper contains a materials and methods section. • Paper contains a table of contents. • Paper contains a background and significance section. • Paper contains a procedures section. • Paper contains a results section.

TRAINING DESIGN PLAN TEMPLATE INSTRUCTIONS AND RUBRIC

Over the course of the week, students will create a training design plan within the provided template. Complete the template based on the pre-course needs assessment, required readings, independent research, and course content. The design template outlines the contents of an actual training component and should be referenced in the executive briefing paper and presentation.

- **A partial draft of the template is due by Day 4** so that Unit 5 instruction can identify missing content and areas of strength and weakness.
- **The template is due at the start of the 6th day of class.**

<table>
<tr><th rowspan="2">Criteria</th><th colspan="3">Ratings</th></tr>
<tr><th>25 points</th><th>20 points</th><th>10 points</th></tr>
<tr><td>Quality of Content</td>
<td>
All responses reflect a thorough understanding of course material.
All descriptions are complete and logical.
All references support the material they are aligned with, and all are from reliable sources.
The contents as a whole form a compelling argument for the training plan.
Needs Assessment:
- Gap analysis is clearly stated and supports the proposed training.
- Performance standards are accurate for the target audience.
Design:
- Application of adult learning theory is sound.
- Delivery method selection is conducive to target audience learning.
- Objects are clear, support the training outcome, and are correctly aligned with Bloom’s Taxonomy.
- Objectives are aligned with competencies.
- Activities are meaningful, engaging, and support objectives.
- Student evaluation is well described and will provide meaningful feedback.
Evaluation and Remediation are complete and referenced.
Cost – Benefit Analysis:
- Monetary cost is thorough and realistic.
- Non-monetary cost is thorough and realistic.
- Funding sources are thorough and realistic.
- Analysis is thorough, realistic, properly referenced, and convincing.
</td>
<td>
Up to 2 content areas do not reflect a thorough understanding of course material (as described in the desired effort column).
OR
Up to 2 content areas are vague, not adequately described, or do not logically connect with related contents (as described in the desired effort column).
OR
The contents as a whole form a logical, but not compelling argument (content makes sense, but not convincing due to the absence of proof of concept).
</td>
<td>
More than 2 content areas do not reflect a thorough understanding of course material (as described in the desired effort column).
OR
More than 2 content areas are vague, not adequately described, or do not logically connect with related contents (as described in the desired effort column).
OR
The contents as a whole do not make sense in relation to each other or the proposed training.
</td></tr>
</table>

<table>
<tr><th></th><th>15 points</th><th>10 points</th><th>0 points</th></tr>
<tr><td>Content Completion</td><td>Desired effort:
• Needs Assessment:
- Performance and training gaps are complete.
- At least 4 references are provided.
• Design:
- Instructional Impact is complete and at least 1 reference is provided.
- Delivery Method is complete.
- Competency Alignment is complete with at least 1 reference.
- Activities and alignment are complete.
- Student evaluation is complete with both formative and summative tools described.
• Logistics:
- Instructor requirements and references are complete.
- Facility and Technology needs are complete.
• Cost – Benefit Analysis is complete and referenced.</td><td>Marginal effort:
• Up to 2 required components are missing.</td><td>Unsatisfactory effort:
• More than 2 components are missing.</td></tr>
<tr><td></td><td>10 points</td><td>5 points</td><td>0 points</td></tr>
<tr><td>Quality of Writing</td><td>Effective writing/communication skills:
• Focus is clear and well established throughout the assignment.
• A logical progression of ideas was presented.
• No errors (or a single minor error) in punctuation, grammar, and spelling.
• Appropriate for audience.</td><td>Marginal writing/ communication skills:
• Focus is somewhat clear and connects problem and solution.
• Lacks clear analysis or support.
• Major or multiple errors in punctuation, grammar, and spelling.
• Appropriate for audience.</td><td>Limited writing/ communication skills:
• Lacks clear focus. OR
• Multiple, major punctuation, grammar, and spelling errors. OR
• Was not appropriate for audience.</td></tr>
<tr><td>Score/Grade</td><td colspan="3">45-50 = A   40 = B   35 = C   below 35 = F</td></tr>
</table>

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EXECUTIVE PAPER ASSIGNMENT INSTRUCTIONS AND RUBRIC

The executive paper will summarize and support the need and impact of the proposed training to include its relationship to community outcomes. The target audience for the paper is a policy making authority, such as a commission, council, or similar authority for the student's jurisdiction. This is a formal proposal seeking funding and logistical support and should succinctly address the gap identified in the pre-course assignment and solution described in the Training Design Plan. The paper should be two (2) pages long and is due by the start of Day 6.

<table>
<tr><th rowspan="2">Criteria</th><th colspan="3">Ratings</th></tr>
<tr><th>15 points</th><th>10 points</th><th>5 points</th></tr>
<tr><td>Training Plan Defined</td>
<td>Evidenced understanding and critical thinking by presenting a training plan that:
Need (gap) is succinctly stated by presenting the performance problem and proposed solution.
Performance problem and training solution are clearly aligned.
A training plan is presented to include cultural considerations, resources, and outcomes that are clearly aligned to desirable community outcomes.
Content and summary result in a compelling argument for the training plan.
At least 4 references are cited.</td>
<td>Marginal comprehension/ effort:
Need (gap) is explained by presenting the performance problem and proposed solution.
Performance problem and training solution are aligned, but may be questionable.
A training plan is presented to include at least 2 of the following: cultural considerations, resources, and outcomes that are clearly aligned to desirable community outcomes.
Content and summary are logical, but not compelling.
At least 3 references are cited.</td>
<td>Limited comprehension/ effort:
Missing a connection of performance problem to training.
OR
Performance problem is not defined.
OR
Failed to show connection between training plan and community outcomes.</td></tr>
<tr><td></td><th>10 points</th><th>5 points</th><th>0 points</th></tr>
<tr><td>Quality of Writing</td>
<td>Effective writing/communication skills:
Focus is clear and well established throughout the assignment.
A logical progression of ideas was presented.
No errors (or a single minor error) in punctuation, grammar, and spelling.
Appropriate for audience.
At least 3 references cited.</td>
<td>Marginal writing/ communication skills:
Focus is somewhat clear and connects problem and solution.
Lacks clear analysis or support.
Major or multiple errors in punctuation, grammar, and spelling.
Appropriate for audience.
At least 2 references cited.</td>
<td>Limited writing/ communication skills:
Lacks clear focus.
OR
Multiple, major punctuation, grammar, and spelling errors.
OR
Was not appropriate for audience.
OR
Less than 2 references cited.</td></tr>
<tr><td>Score/Grade</td><td colspan="3">25 = A 20 = B 15 = C below 15 = F</td></tr>
</table>

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PEER REVIEW ASSIGNMENT INSTRUCTIONS AND RUBRIC

The class will break into two (2) groups. Each student shall present the draft of their final presentation, as all other students complete a peer review. This is an opportunity for students to practice the knowledge and skills acquired through the course content by both presenting and reviewing. It is also an opportunity for each student to receive constructive feedback on their presentation. See Instructions for Final Presentation.

- Each student shall provide constructive feedback by completing a review form for each presentation.
- During peer review, students must anticipate questions that the audience may ask in a real-world presentation. Students are required to submit 2 potential questions at the end of Day 5 to instructors so that the instructor may pose questions during the final presentations.

Peer Review	**10 points**	**5 points**	**0 points**
	Evidenced understanding and critical thinking: • Provide constructive feedback in peer review. • Submit 2 questions for instructors to ask about a peer's presentation (that could plausibly asked by the audience in a real-world presentation).	Marginal comprehension/ effort: • Submit feedback that is not useful. OR • Submit unrealistic questions for instructors to ask about a peer's presentation.	Limited comprehension/ effort: • Submit feedback that is not useful. OR • Submit unrealistic questions for instructors to ask about a peer's presentation.
Score/Grade	***5-10 = Pass 0 = Fail***		

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FINAL PRESENTATION INSTRUCTIONS AND RUBRIC

The presentation is a formal proposal, seeking funding and logistical support for the training solution proposed in the Executive Paper. Presentation audience is the student's organizational policy-making body and should address the gap identified in the pre-course assignment, the solution described in the assigned Training Design Plan, highlighting the points made in the Executive Paper.

- The presentation should last no more than five (5) minutes and shall be stopped at the five (5) minute mark if presentation is not complete.
- Following the completion of the presentation, each table shall ask one (1) question regarding the proposal, reflecting what would be asked by a member of their policy-making body. The instructors may also ask questions and will provide constructive feedback.
- The presentation shall include a final slide indicating what changes were made based on peer review comments.
- **Participants shall be ready to present draft presentation to peers on Day 5 and make the Final Presentation on Day 6.**

Category	Scoring Criteria	Total Points
Organization 2 Points	Information is presented in a logical sequence.	1
	Presentation appropriately cites references.	1
Content 12 Points	Introduction is attention-getting, lays out the problem well, and provides a framework for the rest of the presentation.	2
	Terms are well-defined and described for the target audience.	2
	Presentation contains accurate information.	2
	Contains a clearly identified gap, viable training solution, and evidence-based request for funding and support.	2
	Demonstrates adequate preparation.	2
	Clear conclusion summarizing the presentation.	2
Presentation 8 Points	Speaker maintains eye contact with the audience and is appropriately animated (e.g., gestures, moving around, etc.).	1
	Speaker uses a clear, audible voice.	1
	Delivery is poised and controlled.	1
	Good language skills and pronunciation are used.	1
	Visual aids contain no typos, misspellings, or distracting text or images.	1
	Visual aids are well prepared, informative, and effective.	1
	Length of presentation is within the assigned time limit.	1
	Information was well communicated.	1
Peer Review 3 Points	Constructive peer review feedback was incorporated.	3
	Total Points Possible	**25**
	Score/Grade 22-25 = A 20-21 = B 17-19 = C below 17 = F	

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SCHEDULE

TIME	DAY 1	TIME	DAY 2
AM	Introduction, Welcome and Administrative	AM	Unit 2: Training and Community (cont'd) Activity 2.3: Training Partners Activity 2.4: Training Partnerships and Community Outcomes
AM	Break	AM	Break
AM	Unit 1: Officer Role in Training and Professional Development Activity 1.1: National Model Activity 1.2: NEMSMA Competencies	AM	Unit 3: Adult Learning Activity 3.1: Professional Development KSA's Activity 3.2: Delivery Methods Debate
Mid-Day	Lunch	Mid-Day	Lunch
PM	Unit 2: Training and Community Activity 2.1: Changing Expectations	PM	Unit 3: Adult Learning (cont'd) Activity 3.3: Learning Strategy Activity 3.4: Bloom's Taxonomy Classification and Description
PM	Break	PM	Break
PM	Unit 2: Training and Community (cont'd) Activity 2.2: Training Priorities NETC Library Research Visit	PM	Unit 4: Analysis Activity 4.1: Instructional Design Theory Activity 4.2: Review of the ADDIE Model Activity 4.3: Initiators of Training
Evening	NETC Library Activity Pre-course paper review and feedback Required readings for Units 3 and 4	Evening	Pre-course paper edits View assigned video

Note: This schedule is subject to modification by the instructors and approved by the training specialist.

TIME	DAY 3	TIME	DAY 4
AM	Unit 4: Analysis (cont'd) Activity 4.4: Performance Analysis	AM	Unit 5: Design and Development
AM	Break	AM	Break
AM	Training specialist roundtable Unit 4: Analysis (cont'd)	AM	Unit 5: Design and Development (cont'd) Activity 5.1: Job Aids
Mid-Day	Lunch	Mid-Day	Lunch
PM	Unit 4: Analysis (cont'd) Activity 4.5: Regulation Review Activity 4.6: Ethical Considerations Activity 4.7: Ethical Behavior	PM	Unit 5: Design and Development (cont'd) Activity 5.2: Instructional Technology
PM	Break	PM	Break
PM	Unit 4: Analysis (cont'd) Activity 4.8: Copyright and Fair Use Activity 4.9: Cost and Benefits	PM	Unit 5: Design and Development (cont'd) Activity 5.3: Novel Technology Unit 6: Implementation and Evaluation Activity 6.1: Presenter Qualifications
Evening	Required readings for Units 5 and 6 Draft Training Template Assignment Discussion board activity related to training specialist roundtable	Evening	

TIME	DAY 5	TIME	DAY 6
AM	Unit 6: Implementation and Evaluation (cont'd) Activity 6.2: Marketing Training Activity 6.3: Return on Investment	AM	Unit 7: Final Project (cont'd)
AM	Break	AM	Break
AM	Unit 7: Final Project	AM	Unit 7: Final Project (cont'd)
Mid-Day	Lunch	Mid-Day	Lunch
PM	Unit 7: Final Project (cont'd)	PM	Unit 7: Final Project (cont'd)
PM	Break	PM	Break
PM	Unit 7: Final Project (cont'd)	PM	Unit 7: Final Project (cont'd)
Evening	Revisions based on peer review Training Template Assignment due by Friday morning		

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FIREFIGHTER CODE OF ETHICS

Background

The Fire Service is a noble calling, one which is founded on mutual respect and trust between firefighters and the citizens they serve. To ensure the continuing integrity of the Fire Service, the highest standards of ethical conduct must be maintained at all times.

Developed in response to the publication of the Fire Service Reputation Management White Paper, the purpose of this National Firefighter Code of Ethics is to establish criteria that encourages fire service personnel to promote a culture of ethical integrity and high standards of professionalism in our field. The broad scope of this recommended Code of Ethics is intended to mitigate and negate situations that may result in embarrassment and waning of public support for what has historically been a highly respected profession.

Ethics comes from the Greek word ethos, meaning character. Character is not necessarily defined by how a person behaves when conditions are optimal and life is good. It is easy to take the high road when the path is paved and obstacles are few or non-existent. Character is also defined by decisions made under pressure, when no one is looking, when the road contains land mines, and the way is obscured. As members of the Fire Service, we share a responsibility to project an ethical character of professionalism, integrity, compassion, loyalty and honesty in all that we do, all of the time.

We need to accept this ethics challenge and be truly willing to maintain a culture that is consistent with the expectations outlined in this document. By doing so, we can create a legacy that validates and sustains the distinguished Fire Service institution, and at the same time ensure that we leave the Fire Service in better condition than when we arrived.

FIREFIGHTER CODE OF ETHICS

I understand that I have the responsibility to conduct myself in a manner that reflects proper ethical behavior and integrity. In so doing, I will help foster a continuing positive public perception of the fire service. Therefore, I pledge the following…

- Always conduct myself, on and off duty, in a manner that reflects positively on myself, my department and the fire service in general.
- Accept responsibility for my actions and for the consequences of my actions.
- Support the concept of fairness and the value of diverse thoughts and opinions.
- Avoid situations that would adversely affect the credibility or public perception of the fire service profession.
- Be truthful and honest at all times and report instances of cheating or other dishonest acts that compromise the integrity of the fire service.
- Conduct my personal affairs in a manner that does not improperly influence the performance of my duties, or bring discredit to my organization.
- Be respectful and conscious of each member's safety and welfare.
- Recognize that I serve in a position of public trust that requires stewardship in the honest and efficient use of publicly owned resources, including uniforms, facilities, vehicles and equipment and that these are protected from misuse and theft.
- Exercise professionalism, competence, respect and loyalty in the performance of my duties and use information, confidential or otherwise, gained by virtue of my position, only to benefit those I am entrusted to serve.
- Avoid financial investments, outside employment, outside business interests or activities that conflict with or are enhanced by my official position or have the potential to create the perception of impropriety.
- Never propose or accept personal rewards, special privileges, benefits, advancement, honors or gifts that may create a conflict of interest, or the appearance thereof.
- Never engage in activities involving alcohol or other substance use or abuse that can impair my mental state or the performance of my duties and compromise safety.
- Never discriminate on the basis of race, religion, color, creed, age, marital status, national origin, ancestry, gender, sexual preference, medical condition or handicap.
- Never harass, intimidate or threaten fellow members of the service or the public and stop or report the actions of other firefighters who engage in such behaviors.
- Responsibly use social networking, electronic communications, or other media technology opportunities in a manner that does not discredit, dishonor or embarrass my organization, the fire service and the public. I also understand that failure to resolve or report inappropriate use of this media equates to condoning this behavior.

Developed by the National Society of Executive Fire Officers

A Student Guide to End-of-course Evaluations

Say What You Mean ...

Ten Things You Can Do to Improve the National Fire Academy

The National Fire Academy takes its course evaluations very seriously. Your comments and suggestions enable us to improve your learning experience.

Unfortunately, we often get end-of-course comments like these that are vague and, therefore, not actionable. We know you are trying to keep your answers short, but the more specific you can be, the better we can respond.

Actual quotes from student evaluations:	Examples of specific, actionable comments that would help us improve the course:
1 "Update the materials."	• The (ABC) fire video is out-of-date because of the dangerous tactics it demonstrates. The available (XYZ) video shows current practices. • The student manual references building codes that are 12 years old.
2 "We want an advanced class in (fill in the blank)."	• We would like a class that enables us to calculate energy transfer rates resulting from exposure fires. • We would like a class that provides one-on-one workplace harassment counseling practice exercises.
3 "More activities."	• An activity where students can physically measure the area of sprinkler coverage would improve understanding of the concept. • Not all students were able to fill all ICS positions in the exercises. Add more exercises so all students can participate.
4 "A longer course."	• The class should be increased by one hour per day to enable all students to participate in exercises. • The class should be increased by two days so that all group presentations can be peer evaluated and have written abstracts.
5 "Readable plans."	• The plans should be enlarged to 11 by 17 and provided with an accurate scale. • My plan set was blurry, which caused the dotted lines to be interpreted as solid lines.
6 "Better student guide organization," "manual did not coincide with slides."	• The slide sequence in Unit 4 did not align with the content in the student manual from slides 4-16 through 4-21. • The instructor added slides in Unit 4 that were not in my student manual.
7 "Dry in spots."	• The instructor/activity should have used student group activities rather than lecture to explain Maslow's Hierarchy. • Create a pre-course reading on symbiotic personal relationships rather than trying to lecture on them in class.
8 "More visual aids."	• The text description of V-patterns did not provide three-dimensional views. More photographs or drawings would help me imagine the pattern. • There was a video clip on NBC News (date) that summarized the topic very well.
9 "Re-evaluate pre-course assignments."	• The pre-course assignments were not discussed or referenced in class. Either connect them to the course content or delete them. • The pre-course assignments on ICS could be reduced to a one-page job aid rather than a 25-page reading.
10 "A better understanding of NIMS."	• The instructor did not explain the connection between NIMS and ICS. • The student manual needs an illustrated guide to NIMS.

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UNIT 1: OFFICER ROLE IN TRAINING AND PROFESSIONAL DEVELOPMENT

TERMINAL OBJECTIVE

The students will be able to:

1.1 Evaluate and reframe officer roles and responsibilities in terms of training and professional development.

ENABLING OBJECTIVES

The students will be able to:

1.1 Compare and contrast officer roles and responsibilities among the officer categories.

1.2 Discuss roles and responsibilities of officer categories within the student's organization.

1.3 Align officer roles and responsibilities with training and professional development.

1.4 Identify how the National Fire Service Research Agenda impacts the responsibilities of all officer roles.

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FEMA

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TRAINING AND PROFESSIONAL DEVELOPMENT CHALLENGES FOR FIRE AND EMERGENCY SERVICES LEADERS (R0389)

Slide 1-1

FEMA

U.S. Fire Administration

UNIT 1: THE OFFICER ROLE IN TRAINING AND PROFESSIONAL DEVELOPMENT

Slide 1-2

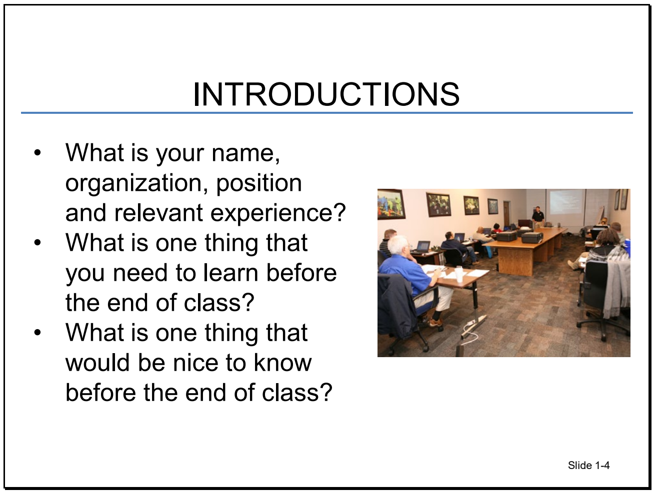
COURSE OBJECTIVES

TO: Evaluate and reframe officer roles and responsibilities in terms of training and professional development.

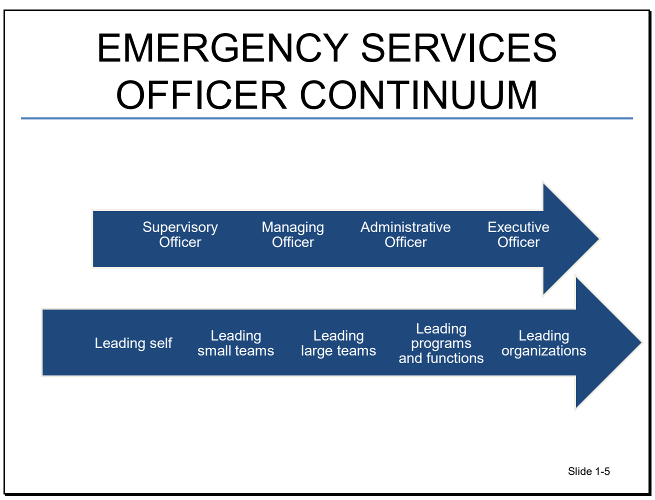
EO: Compare and contrast officer roles and responsibilities among the officer categories.
EO: Discuss roles and responsibilities of officer categories within the student's organization.
EO: Align officer roles and responsibilities with training and professional development.
EO: Identify how the National Fire Service Research Agenda impacts the responsibilities of all officer roles.

Slide 1-3

I. WELCOME AND INTRODUCTIONS



II. EMERGENCY SERVICES OFFICER CONTINUUM, NATIONAL OFFICER DEVELOPMENT MODEL, AND TRAINING COMPETENCIES



A challenge many members of the fire and emergency services officer corps may face is that their role and responsibilities do not fit neatly into one of the four officer levels described by the national model. For example, a supervisory officer in a small to mid-sized department may find that their duties are primarily within the scope of supervisory officer, but that they are also assigned duties that fall within the managing or administrative officer levels.

This program seeks to bridge the gap between supervisory, managing and administrative officers in regard to training; to demonstrate the links that training has with the department strategic plan and business model; and tools to leverage training as a force multiplier and value added service for the department.

ACTIVITY 1.1

National Model

Purpose

- Learn to compare and contrast officer roles and responsibilities.
- Discuss officer roles and responsibilities within organizations.

Directions

1. In table groups, use the diagram provided and information from your pre-course reading (IAFC Professional Development Model) to assess where your role falls within the National Officer Development Model given the Emergency Services Officer Continuum.

2. Each group will answer these questions:

   a. Do your roles and responsibilities align with the National model? Identify which do and which do not.

   b. What is the impact for those that do not align?

   c. Is the concept of Emergency Services Officer Continuum commonly understood? (It may be called something else in other places.)

   d. What could realistically be done to bridge gaps?

3. One person from each group will report out for the class to discuss.

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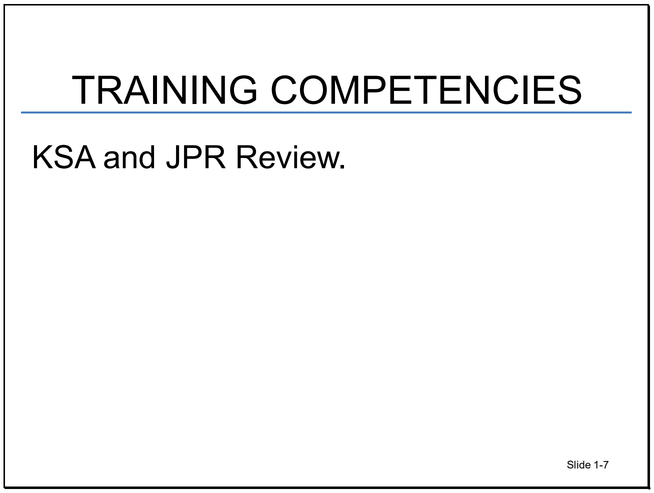
II. EMERGENCY SERVICES OFFICER CONTINUUM, NATIONAL OFFICER DEVELOPMENT MODEL, AND TRAINING COMPETENCIES (cont'd)

A. National Officer Development Model.



B. Training competencies.

1. The Professional Development Model has identified KSA's required to meet the various officer levels.

   a. Review the Instructor I process that develops JPRs from standards that identify KSAs.

   b. For example, as a supervisory fire officer, one of the requirements is to understand the basic principles of instruction. The JPRs required to meet the KSA are included as part of the Fire Instructor I certification.

2. The JPR may look like: X.X.X Direct unit members during a training evolution, given a company training evolution and training policies and procedures, so that the evolution is performed safely, efficiently, and as directed.

   a. Required knowledge: verbal communication techniques to facilitate learning.

   b. Requisite skills: the ability to distribute issue-guided directions to unit members during training evolutions.

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ACTIVITY 1.2

NEMSMA Competencies

Purpose

- Learn to compare and contrast officer roles and responsibilities.
- Discuss officer roles and responsibilities within organizations.
- Use competencies to assist in aligning officer roles and responsibilities with professional development.

Directions

1. In table groups, use the NEMSMA EMS Officer Competencies 7 Pillars to identify and discuss the differences among the supervising, managing, and executive officers competencies in the following areas:

    a. Knowledge of principles of learning.

    b. Interpreting the meaning of information for others.

    c. Assessing others.

    d. Coaching, developing, instructing.

2. Each group will be assigned a topic. Each group will answer these questions for their topic:

    a. Identify how these competencies are similar to, or may differ from, what is required in your position.

    b. Are there any similarities to the answers in question 1 among your group? If yes, what are they?

    c. What impact do these competencies ultimately have on the services provided to the community?

3. One person from each group will report out on questions 2 and 3.

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ACTIVITY 1.2

NEMSMA-EMS Officers Competencies

LEADING OTHERS

DEVELOPING OTHERS

	Knowledge Of Principles Of Learning	Interpreting The Meaning Of Information For Others	Assessing Others	Coaching, Developing, Instructing
S Supervising	The supervising EMS officer will understand the importance of maintaining a workplace that supports the adult learner, one that provides the methodologies and processes that promote active and ongoing education.	The supervising EMS officer will understand the importance of interpreting organizational and individual data and should use said data to measure workplace performance.	The supervising EMS officer will understand the importance of effectively assessing those he or she leads in a manner that is open, honest and supportive. He or she should demonstrate the skills required for same.	The supervising EMS officer will understand the importance of identifying organizational and individual strengths and opportunities. He or she should develop an open and supportive plan of action, and continually assess progress for those he or she leads.
M Managing	The managing EMS officer will understand the importance of maintaining a workplace that supports the adult learner, one that provides the methodologies and processes that promote active and ongoing education.	The managing EMS officer will understand the importance of interpreting organizational and individual data and should use said data to measure workplace performance. He or she should provide said data as appropriate.	The managing EMS officer will understand the importance of effectively assessing those he or she leads in a manner that is open, honest and supportive. He or she should demonstrate the skills required for same.	The managing EMS officer will understand the importance of identifying organizational and individual strengths and opportunities. He or she should develop an open and supportive plan of action, and continually assess progress for those he or she leads.
E Executive	The executive EMS officer will understand the importance of maintaining a workplace that supports the adult learner, one that provides the methodologies, means and processes that promote active and ongoing education.	The executive EMS officer will understand the importance of interpreting organizational and individual data and should use said data to measure workplace performance. He or she should present said data to stakeholders within and outside the organization.	The executive EMS officer will understand the importance of effectively assessing those he or she leads in a manner that is open, honest and supportive. He or she should demonstrate the skills required for same.	The executive EMS officer will understand the importance of identifying organizational and individual strengths and opportunities. He or she should develop an open and supportive plan of action, and continually assess progress for those he or she leads.

 V.1.2

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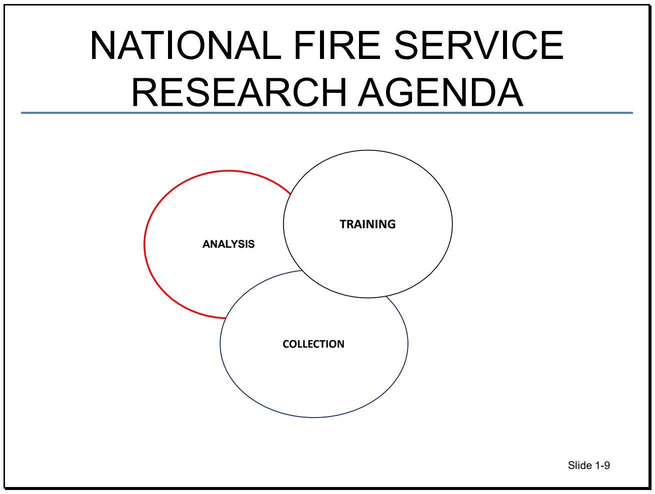
III. NATIONAL FIRE SERVICE RESEARCH AGENDA

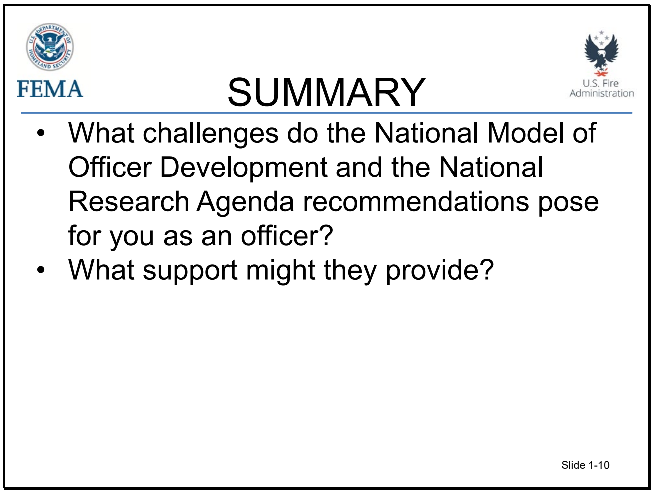


A. "The 2015 National Fire Service Research Agenda Symposium (RAS) was held November 15-18, 2015 in Arlington, Virginia. Firefighter Life Safety Initiative #7 calls for the creation and maintenance of a fire service research agenda. To that end, the National Fallen Firefighters Foundation has previously hosted two research agenda symposiums in 2005 and 2011.

B. Although the publication of a new Fire Service Research Agenda causes great excitement in the academic and research community, the broader fire service often has very little interface with it, and may subsequently lack understanding of its true impact. They are often unaware that virtually every research project conducted by, or on behalf of the fire service, has its roots in the Research Agenda. In fact, demonstrating a project's connection to its recommendations is often a gateway to grant funding for researchers."

C. New skills, knowledge, and/or training for fire and emergency services are linked directly or indirectly to all 54 recommendations identified in the National Fire Service Research Agenda require; therefore, it is essential that an officer be familiar with its contents.

IV. SUMMARY



V. EVENING ASSIGNMENTS

A. NETC Library activity.

The class will visit the NETC Library and receive an orientation. Following the orientation, students will complete the following activities:

1. Describe the difference between peer-reviewed and trade publications.

2. Identify two peer-reviewed sources and two trade sources that relate to your topic area.

3. Submit a literature search request to the NETC Library for a topic of interest.

B. Pre-course paper activity.

1. Students will conduct a peer review of another student's pre-course paper. Reviewers will identify areas for improvement, including:

   a. Confirmation that the issue is a training issue.

   b. Identifying missing or incomplete information.

   c. Syntax, flow, grammar or content issues.

2. Students will provide the authors with a written report and shall verbally provide feedback. Authors will then be given the opportunity to make changes.

3. Completed pre-course papers are due at the start of the third day of class.

UNIT 2: TRAINING AND COMMUNITY

TERMINAL OBJECTIVE

The students will be able to:

2.1 Manage external and internal challenges that impact training so that community needs are met.

ENABLING OBJECTIVES

The students will be able to:

2.1 Identify community core values, demographics, and public expectations.

2.2 Determine paths to educate the public and manage community expectations.

2.3 Relate community outcomes to pre-recruitment training.

2.4 Connect community outcomes with organization resources in regard to constraints such as funding sources, demographics, policy, and data collection.

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FEMA

U.S. Fire Administration

UNIT 2: TRAINING AND COMMUNITY

Slide 2-1

OBJECTIVES

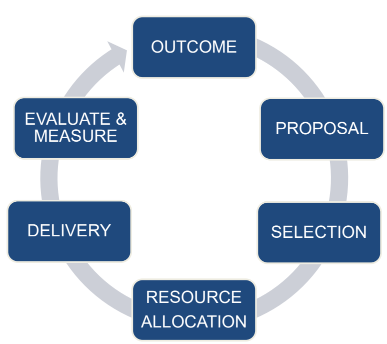
TO: Manage external and internal challenges that impact training so that community needs are met.

EO: Identify community core values, demographics, and public expectations.
EO: Determine paths to educate the public and manage community expectations.
EO: Relate community outcomes to pre-recruitment training.
EO: Connect community outcomes with organization resources in regard to constraints such as funding sources, demographics, policy, and data collection.

Slide 2-2

I. TRANSFORMATIONAL MODEL, CORE VALUES, AND TRAINING

TRANSFORMATIONAL MODEL

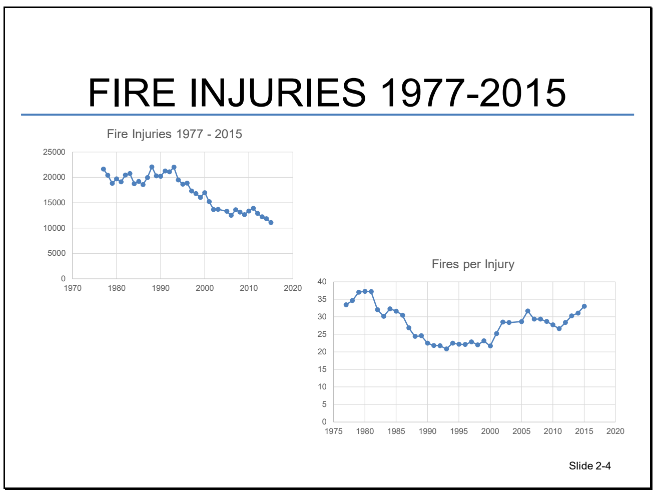


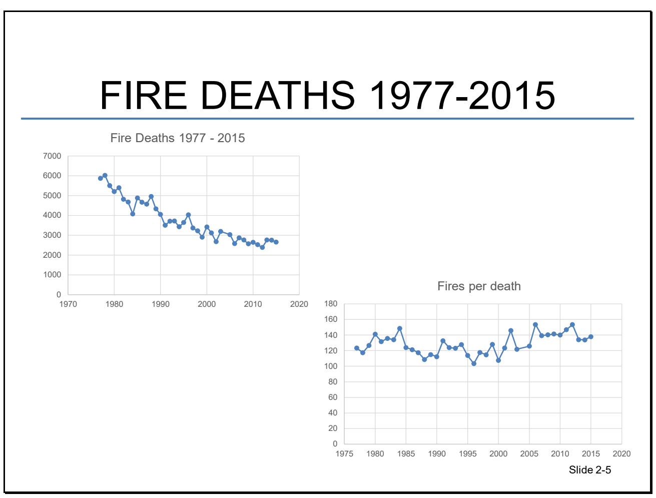
Slide 2-3

The Transformational Model applies to the officer, the organization, and the community. It is a cyclical process that causes the transformation of resources, ideas, and needs into desired results, by focusing on the desired outcomes from the beginning and through all stages of the process.

Transformational Model:

- Desired outcome.
- Proposed services and/or programs.
- Selected services and/or programs.
- Resources allocated.
- Delivery of services and/or programs.
- Results evaluated and measured in comparison to desired community outcome.





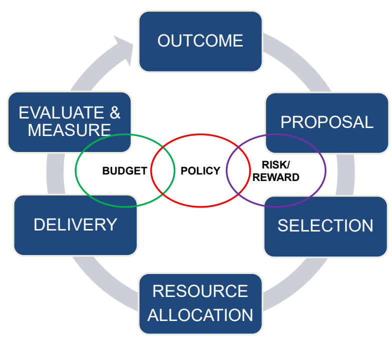
CORE VALUES

- What are your personal core values?
- What are the core values of your organization?
- What are the core values of your community?
- How do they all relate?

Slide 2-6

A. Core values.

TRANSFORMATION AND TRAINING



Slide 2-7

B. Transformation and training.

1. The transformational model is designed to use desired community outcomes to drive policy development, budget expenditures, and identification of the level of risk-reward within a community.

2. For example, while every community desires safety, the level of acceptable risk will drive policy decisions and expenditures of funds to support those outcomes.

3. Importance of Outcomes. Common community outcomes include safety and health of the community, infrastructure, education, and community commons, such as parks and recreation.

   How do these areas, determined by community outcomes, impact organizational transformation and training?

a. Policy.

b. Budget.

c. Risk.

d. Rewards.

e. Service Area/Neighborhood.

f. Demographics.

g. Risk Profile.

h. Data Collection (NFIRS, RMS, etc.)

i. Natural and Manmade Hazards.

ACTIVITY 2.1

Changing Expectations

Purpose

Based on the areas that impact community outcomes discussed in this Unit, identify and debate strategies to manage the impact of internal and external forces on training in fire and EMS.

Directions

1. In table groups determine:

    a. What external forces may be impacting this directive?

    ____

    ____

    ____

    b. What internal forces may be impacting this directive?

    ____

    ____

    ____

    c. How to address the chief's assignment?

    ____

    ____

    ____

2. Be prepared to share with the class.

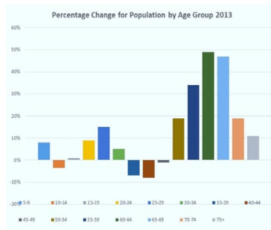
Scenario

There has been a change in elected officials in your community. The new mayor and commission are seeking to expand the duties of the fire department. Specifically, they are looking to keep one person in the station to drive the apparatus and send other members into the field. Responders will be detailed out to conduct a variety of tasks, including identifying street lights that are out, code enforcement, meter reading, and performing aggressive community outreach and risk reduction. The chief has asked you to address the impact on your company, what training would be needed to maintain current skills, and to perform the tasks expected by the elected officials.

II. COMMUNITY CHARACTERISTICS AND NEEDS: DEMOGRAPHICS AND DIVERSITY

DEMOGRAPHICS AND DIVERSITY

- Easily Measurable:
  - Age.
  - Gender.
  - Income.
  - Education.
- Other Considerations:
  - Culture.
  - Group Affiliations.
  - Personality.



Slide 2-9

A. Demographics and Diversity.

1. The emergency services serve each and every member of the community, regardless of age, gender, race, background, economy or any other factor. All members of the community help to fund and support departments in some capacity.

DEMOGRAPHICS

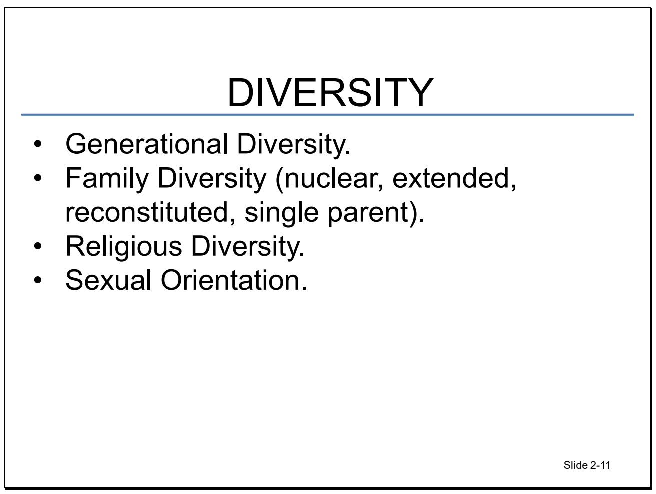
Bureau of Labor Statistics 2017					
	Women	White	African American	Asian	Hispanic
ALL Occupations	46.9%	78.4%	12.1%	6.2%	16.9%
Fire Fighter	3.5%	88.5%	7.5%	1%	7.7%

Slide 2-10

2. The United States continues to grow in its diversity; however, the fire and emergency services do not reflect this trend, with the fire service being dominated by white males.

Bureau of Labor Statistics 2017					
	Women	**White**	**African American**	**Asian**	**Hispanic**
ALL Occupations	46.9%	78.4%	12.1%	6.2%	16.9%
Fire Fighter	3.5%	88.5%	7.5%	1%	7.7%

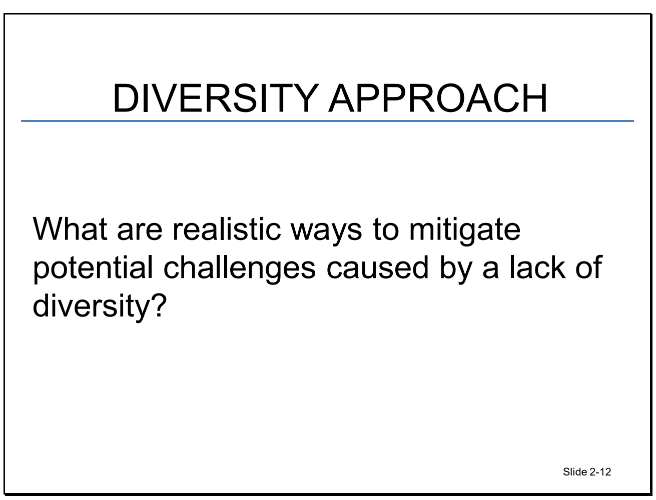
3. The push to diversify the fire service grew from the late 1970s into the early 2000s, with communities attempting different methods to diversify. However, the potential for organizations to lose diversity gains is possible as those who were hired under consent decrees retire.



4. Diversity encompasses more than ethnicity and gender, what are some other areas of diversity that make emergency services stronger?

   a. Generational Diversity.

      - Use mixed-age teams.



- Reverse mentoring with junior mentoring senior.
- Incentives that reflect age and life-cycle needs.
- Survey and ask questions.
- Avoid team development based on similar age groupings.
- Forge partnerships across age groups.
- Do not assume what it takes to motivate workers.

b. Family Diversity (nuclear, extended, reconstituted, single parent).

- Expand leave opportunities.
- Allow for flexible scheduling opportunities.
- Examine non-traditional shifts.
- Job sharing.

c. Religious Diversity.

- Allow for religious exemptions in uniform wear.
- Allow for flexible scheduling opportunities.
- Allow for alternate work and training duties during religious holidays (i.e. “holiday routine” during Ramadan). Religions that have a fasting component include:
  - Bahai.
  - Buddhist.
  - Catholic.
  - Eastern Orthodox.
  - Hindu.
  - Jewish.
  - Mormon.

-- Muslim.

-- Paganism (optional).

-- Protestant — Evangelical and Mainline (discretion of church, community, or individual).

d. Sexual Diversity.

- Gender neutral facilities.

- Gender neutral testing that is job related.

- Gender neutral uniforms.

- Gender neutral job requirements.

- Gender reassignment insurance coverage.

- Partner insurance for same sex couples.

5. Diversity does not mean reducing legitimate qualifications or testing procedures for the sole purpose of diversifying the organization. It focuses on ensuring a fair entry process that is job focused and free from bias.

6. Studies have found that merely trying to achieve diversity is not enough. Organizations that achieve diversity must demonstrate a strong commitment to diversity, including actively recruiting qualified applicants and ensuring a fair, equitable and position-related hiring process.

B. Community and Recruitment.

1. If Emergency Services should mirror the community they serve, how is it possible to draw upon the local community to recruit?

2. In an effort to ensure equal opportunity, some departments have become involved in the education process of potential recruits. By offering pre-testing training for members of diverse communities, they are able to help provide a level platform for all applicants. Anyone interested in applying for positions is offered the opportunity to work on KSAs needed to successfully navigate the application and hiring process.

3. Organizations that have had success in recruiting and retaining diverse candidates, who meet the qualifications, have used a variety of tactics in the process. The following have been found to be most successful:

   a. Targeting under-represented populations.

   b. Using language to promote inclusiveness in the recruitment process.

   c. Using some "formal" methods during the advertising process, such as working with formal organizations, schools and groups, through a formal process rather than relying on word of mouth.

   d. Providing specific, detailed information about the job.

   e. Including candidate families in the advertising process.

   f. Using recruiters who represent the target audience.

   g. Communicating the diversity message in all messages.

   h. Using a fair and valid selection process.

   i. Requiring only the education required to perform the job.

   j. Providing a mentor program.

4. Diversity will play a greater role in recruitment moving forward as the number of replacement workers, those workers taking the place of retirees, is insufficient to meet the growing need. This problem is not specific to the fire service. For example, over 75 percent of electrical linemen are expected to leave the profession before 2025. At the same time, the pool of traditional applicants will be decreasing as a percent of the population.

C. Public Education and Expectations.

HOW ARE YOU EDUCATING THE PUBLIC ON WHAT YOU DO?

- Setting community expectations.
- Returning investment.
- What should they expect? How do they know?

Slide 2-14

1. How should the public be educated on what the fire/EMS service does?

2. As community expectations change, what is driving the change in expectations?

3. The United States is aging, requiring additional health and social services; becoming more diverse, requiring acknowledgement in different expectations and social inputs; and the public investment in community is at its lowest point since before World War II, resulting in an inability to meet community needs in education, health, infrastructure, and other services.

ACTIVITY 2.2

Training Priorities

Purpose

Identify training priorities and needs based on the needs and expectations of your community.

Directions

In your table groups, identify all the skills required to provide services expected by your communities. Prioritize them from critical to non-critical. Determine how much time is needed to ensure and maintain full competency in the skill, then describe the time actually spent on training. Scribe the results and be prepared to share with the class.

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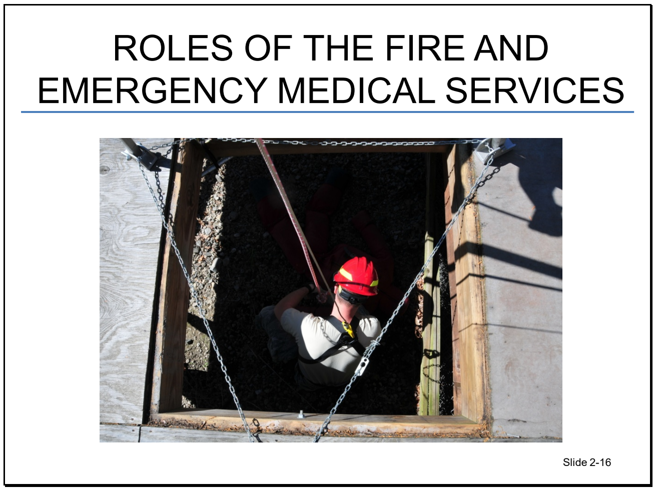
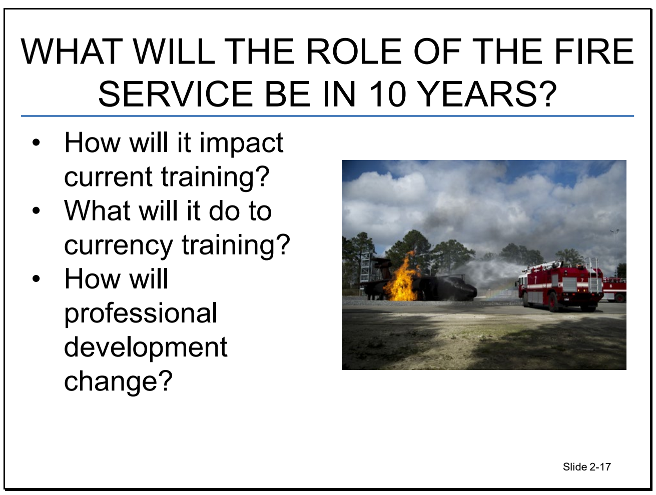
II. COMMUNITY CHARACTERISTICS AND NEEDS: DEMOGRAPHICS AND DIVERSITY (cont'd)



D. Role of Fire and Emergency Medical Services.

1. The fire and Emergency Medical Services (EMS) continues to incorporate and adapt to changing expectations of the communities they serve.



2. What will the role of the fire service be in 10 years?

a. The role of the fire and emergency services has continued to evolve to meet the needs of the communities they serve.

b. As a result, the skill set that responders carry has changed as well.

c. Since the 1950s, fire departments have added vehicle extrication, technical rescue, EMS, hazardous materials, community paramedicine, and community risk reduction to their arsenal.

d. In addition, new tools, equipment and personal protective equipment (PPE) have been added.

e. Already drones are being used in both the urban and the WUI environment and their use in providing support services, logistics, and emergency care is expected to increase.

f. Each new mission and tool requires additional training and competencies to master.

III. PARTNERING

A. Emergency services often view themselves as an inward facing island.

B. However, they have the ability to provide value added services and develop community partnerships that strengthen their ability to remain funded and staffed.

C. In addition, these partnerships allow the department to draw on community resources for response and training equipment, expertise, training venues, and personnel for use during low frequency incidents.

D. For example, the Fire Department of the City of New York (FDNY) has partnered with the U.S. Army in developing training officers for new recruits, and the Elgin Fire Department has partnered with Metra to learn about the mass transit system and its equipment.

E. These partnerships provide emergency responders with new skills and capabilities to perform their job at reduced cost.

F. Training partnerships can also extend to other fire departments or departments internal or within an organization.

G. Training can be done as a community service, revenue source, or a combination where non-profit and community groups pay a nominal fee while for profit entities pay a higher rate.

H. In addition, fire stations and training facilities can be used as meeting and instructional spaces, allowing departments to use training rooms and facilities as revenue sources with third-parties using the space and providing training.

I. For example, partnering with neighboring departments can allow the purchase of equipment or resources that will be used intermittently, allowing greater flexibility in training at reduced cost.

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ACTIVITY 2.3

Training Partners

Purpose

Identify potential training partners in your community which will assist in:

- Identify community core values and expectations.
- Connecting community outcomes with organization resources.
- Identifying partners to assist in public education and expectations.

Directions

At your table groups, identify potential training partners in your community that you can build formal and informal training relationships with. Strategically select some partners that can assist in educating the public and managing community expectations. Scribe your answers on an easel pad and prepare to report out.

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ACTIVITY 2.4

Training Partnerships and Community Outcomes

Purpose

Describe the benefits and risks of training partnerships to determine which community outcomes align with organization resources.

Directions

In your table groups, review the scenarios and identify benefits and risks associated with the proposed training partnerships based on desired outcomes. Once the benefits and risks have been identified, determine if you will partner with the organization in the training endeavor.

Scenario 1

A commercial food production facility in your jurisdiction has offered to provide hazardous materials technician training to members of your department. In return, they ask that the department serve to augment their on-site emergency response team. The facility is approximately 60,000 square feet; lists propane, ammonia, and sulfuric acid on its Tier II reports; is located in the center of your community; and employs over 500 people.

Scenario 2

A neighboring fire department has offered to work to build a joint training facility. The facility would be just over the city line into their jurisdiction. They have a 10-acre parcel of land that they are willing to contribute to the project.

Scenario 3

Following an incident where three firefighters were injured responding to a call for a sick person at an unknown, clandestine drug lab, the local affiliate of the Henchman Motorcycle Club has offered to fund training for your staff so that they can recognize if they are entering a clan lab environment.

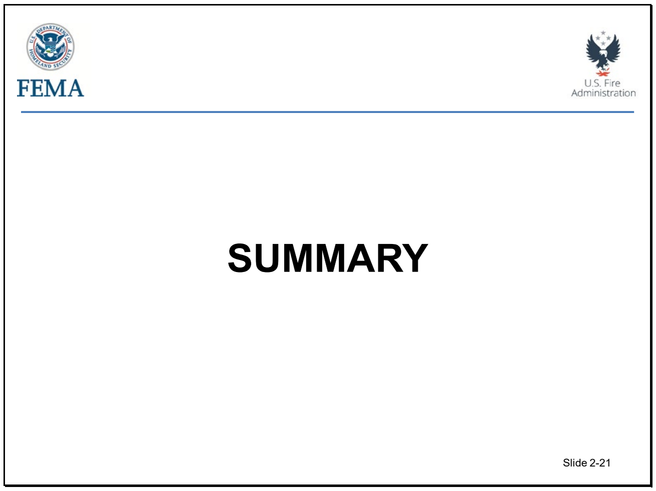
Scenario 4

A local hazardous waste contractor, who has recently been cited for dumping violations, has offered to fund hazardous materials training and provide equipment for your department. Your department was recently cited for failing to maintain currency in hazardous materials training, and the training would allow you to abate the fines from $75,000 to $500.

Scenario 5

A developer of low income, Section 8 housing has offered to fund Emergency Medical Services (EMS) training for your organization. The developer is proposing to build several hundred Section 8 housing units in your community. There is significant, vocal opposition against the developer in the community. Your budget is tapped, and without the donation, you will not be able to provide this training.

IV. SUMMARY



UNIT 3: ADULT LEARNING

TERMINAL OBJECTIVE

The students will be able to:

3.1 Anticipate the needs of adults to construct effective learning components.

ENABLING OBJECTIVES

The students will be able to:

3.1 Identify how adults learn; accept and retain information.

3.2 Connect adult learning principles with specific Fire and EMS training issues.

3.3 Evaluate adult learning delivery methods to use effectively in training.

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FEMA

U.S. Fire Administration

UNIT 3:
ADULT LEARNING

Slide 3-1

OBJECTIVES

TO: Anticipate the needs of adults to construct effective learning components.

EO: Identify how adults learn; accept and retain information.
EO: Connect adult learning principles with specific Fire and EMS training issues.
EO: Evaluate adult learning delivery methods to use effectively in training.

Slide 3-2

I. ASSUMPTIONS OF ADULT LEARNING

WHAT ADULTS NEED TO LEARN

- Why?
- Internal motivation.
- Incorporation of life experiences.
- Need.
- Application to life, task, or problem.
- Incentives.

Slide 3-3

A. Adults want to know the value of the lesson. An adult needs to be acknowledged for her/his current understanding and feel a distinct motivation for accepting new information.

B. Knowles, Holton and Swanson (1998) discuss six assumptions of adult learning.

1. "The Learner's Need to Know" — Adults need to know why they should learn something.

2. "The Learner's Self-Concept" — "Adults resent and resist situations in which they feel others are imposing their wills on them" (1998, p. 65).

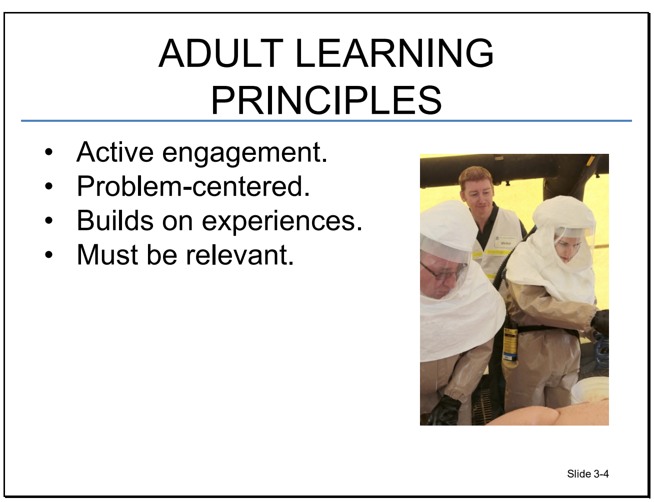
3. "The Role of the Learner's Experience" — Adults have had a lifetime of experiences. Adults want to use what they know and want to be acknowledged for having that knowledge.

4. "A Student's Readiness to Learn" — Adults become ready to learn something when, as Knowles explained, "they experience a need to learn it in order to cope more satisfyingly with real-life tasks or problems" (1980, p. 44).

5. "The Student's Orientation to Learning" — Adults are life, task or problem-centered in their orientation to learning. They want to see how what they are learning will apply to their life, a task they need to perform, or to solving a problem.

6. "Student's Motivation to Learn" — Incentives, such as increased job satisfaction, self-esteem and quality of life, are important in giving adults a reason to learn.

II. PRINCIPLES OF ADULT LEARNING



A. Adults learn through active engagement. Active participation, feedback, activities and other actions designed to increase engagement improve learning.

B. Adults are problem-centered learners. Learning should be linked to applications that can solve problems and benefit the learner.

C. Adults tie learning to previous experiences. Building on the experiences of learners improves retention. Building and showing links is critical to successful outcomes.

D. Information should be relevant. Learning must be tied to work and life to be remembered and applied.

E. Build an emotional connection. Presentations that link to the learner's emotions are more likely to be remembered.

F. Adults use self-learning. The beliefs of the adult learner, accurate or not, may interfere with learning. Explaining why adults should participate in learning and providing context is critical to ensuring engagement.

G. Learning should be aligned. Course materials, activities, media and outcomes should be aligned for greatest retention.

H. Learning should be fun.

III. LEARNING FOR FIRE/EMS

A. Maintaining currency (the ability to perform critical, day to day tasks and low frequency/high impact skills) is a responsibility shared between the supervisory and managing officer. Making sure that personnel can perform at the emergency scene is the core of emergency services, and it should not be slighted. However, professional development does not necessarily link to operational skills. Many of the skills needed to serve as a supervisory officer encompass of those needed to serve as a firefighter, but to be successful, supervisory officers must be able to employ tactical understanding, predictive reasoning, and soft skills that are not always enforced at task levels.

B. As members advance through the ranks, the skills of line responder become even less critical, and the ability to separate leadership from emergency operations at the task level becomes more critical to success. How does the managing officer step back from task and tactics and work to develop others to do the same?

ACTIVITY 3.1

Professional Development KSAs

Purpose

Connect adult learning principles with specific Fire and EMS training issues.

Directions

1. Working in your table groups, answer the following questions and come to a consensus.

    a. What are the most critical skills for company officers?

    b. How they are developed?

    c. What are the critical KSAs for chief level officers?

    d. Develop a plan to acquire those skills and to identify when they are attained.

    e. How should currency in KSAs be maintained at all levels? If it is not possible to maintain mastery of all skills, how will you prioritize which KSAs are allowed to slide and by how much?

2. Record your answers on an easel pad.

3. Be prepared to discuss, justify, and defend your decision.

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III. LEARNING FOR FIRE/EMS (cont'd)

C. A model for motivation used by the military and other organizations separates leadership and management. Leaders at the task level are found within the enlisted and warrant ranks.

1. These personnel have advanced from the apprentice to the master level in their profession and are capable of both task excellence and personnel leadership.

2. The office corps advances along a similar line, with personnel learning skills alongside trade masters (senior enlisted) and learning to tie tasks and tactics to strategies as they move up the career ladder.

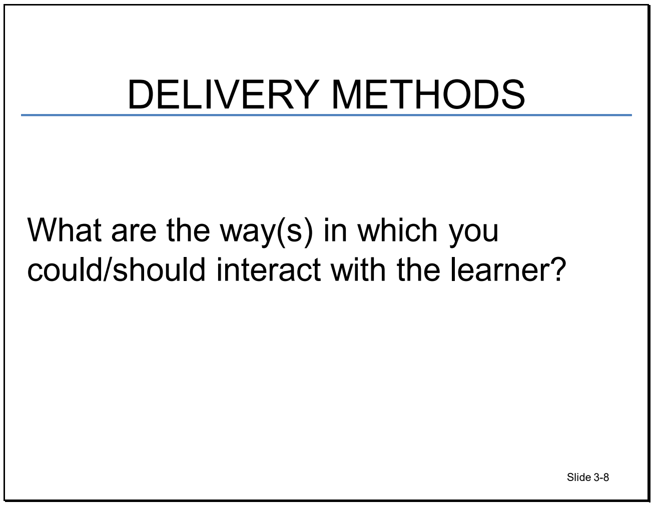
3. As they advance, these personnel are assigned to positions outside of their professional specialty in order to provide them greater understanding of the profession and how different components, and often branches or even countries, interconnect.

4. In fact, in the Army and Navy, when an officer advances to the rank of General or Admiral, they remove their field of specialty designation and simply wear stars on their uniform.

5. It is assumed that they have general knowledge (hence the title General) of the organization and are able to apply those concepts as needed.

6. In the federal service, career employees are given the opportunity to work in other agencies and divisions in an effort to provide them with greater understanding of the organization in order to gain greater understanding of the parts that make up the whole.

IV. DELIVERY METHODS



A. Delivery methods used for adult learning start with the basics and then add interaction and options for variety. Basics include:

1. Engage the students.

2. Present the training content.

3. Demonstrate the training content.

4. Provide practice opportunities for the students.

5. Incorporate theory into your presentation or demonstration to increase the likelihood that the adult audience will learn.

B. Use a variety of delivery methods for adults.

1. Complex information or skills call for a variety of methods to ensure learning occurs.

2. People learn using different senses (e.g., sight, hearing and touch) which demands a variety of methods to ensure a wider group experiences learning.

3. Research has shown that adults prefer “doing” to “seeing and hearing,” so choose your methods accordingly.

C. Tips.

TIP #1

Immediately follow learning with a quiz to improve retention and recall.

Slide 3-9

1. Tip 1 — Immediately following learning with a quiz improves retention and recall by over 50 percent a week following the training session, compared to non-tested students. Testing that requires deeper thought and action, such as essay, short answer, or flashcards strengthen retention and recall better than true-false or multiple choice testing.

TIP #2

Feedback improves testing, and briefly delaying it, works even better.

Slide 3-10

2. Tip 2 — Giving feedback makes testing work better, and briefly delaying feedback works even better than immediate feedback. This works equally well for classroom and drill ground learning.

   Research shows that when learning is harder, requiring more work, the transfer of knowledge, its recall, and the ability to apply learning, including unique application, is improved. Repeated retrieval, such as seen in testing, spread out over time, improves learning and application. In addition, testing does not need to be instructor-led. In fact, learners who develop self-testing methods, like flashcards, have improved retention and application.

TIP #3

When learning skills, mix things up.

Slide 3-11

3. Tip 3 — When learning skills, mix things up.

It seems counter-intuitive, but when learning new skills, mixing up unrelated skills actually leads to improved mastery. For example, rather than learning a series of knots and hitches in one session, learning the bowline, when mixed with other skills, such as carrying ladders and donning a self-contained breathing apparatus (SCBA) in a single session, leads to improved skill mastery. Mixing up the three skills, and repeating them (knot — ladder — SCBA — ladder — SCBA — knot ….), over the training session (interleaving) will improve the learning, retention and application.

Find out if anyone is using broken up content to enhance their training.

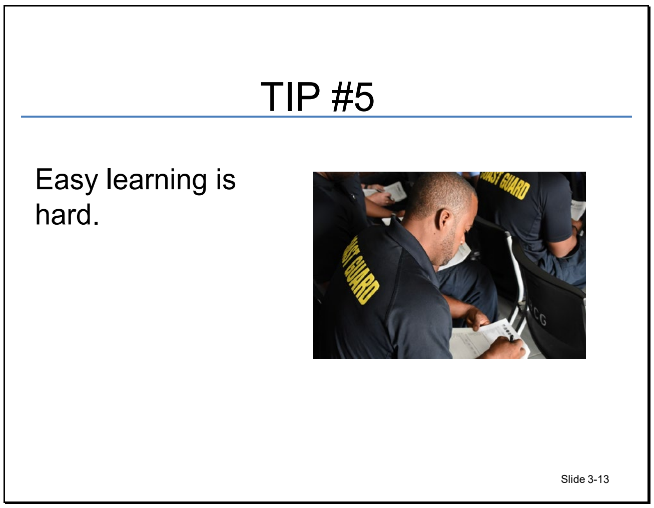
TIP #4

See — Do — Correct — Repeat.

Slide 3-12

4. Tip 4 — See — Do — Correct — Repeat.

In U.S. Army jump school, the training model is built on testing. Attendees do not carry notebooks. Instead, lectures are interspersed with performance testing combined with feedback. Initial attempts to perform the skills will often be incorrect. Immediate feedback and corrective actions are provided, allowing the learner to move closer to mastery with each attempt, allowing the brain to encode (create pathways) the skill, leading to eventual consolidation of correct actions into a new pathway. The training then reinforces that pathway, leading to a strong neural network, allowing retrieval and application through repetition of correct actions.

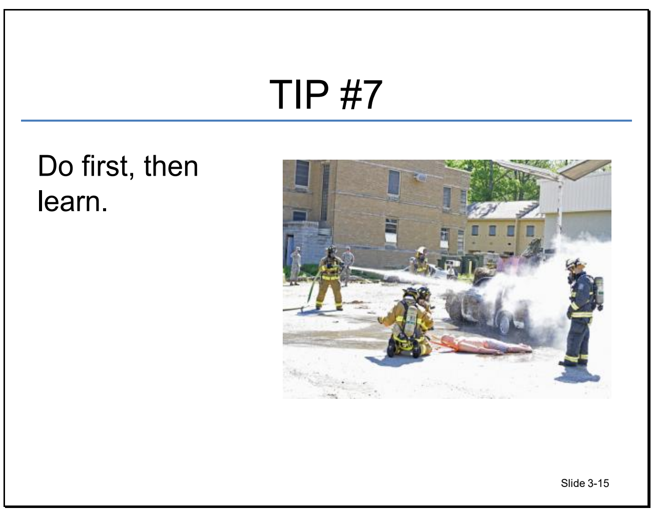


5. Tip 5 — Easy learning is hard.

The harder it is to master the material, the stronger the neural pathway becomes, resulting in improved retention and application. If learning is easy, there is less retrieval practice, so the network does not build up to become as robust. Hard learning requires more practice and retrieval to master the topic, resulting in more robust pathways, entrenching learning, retrieval and application.

6. Tip 6 — There's a reason May is ladder month.

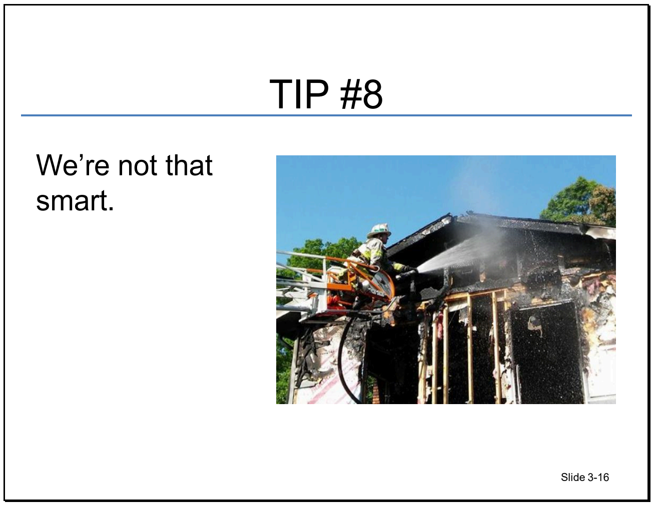
The ability to store information and skills in long term memory is, for all practical purposes, unlimited. Long term memory builds on prior learning and the ability to recall and use this information requires repeated use of the information or skill. So, periodically using the skill or knowledge (currency training) is required to strengthen recall and use.



7. Tip 7 — Do first, then learn works.

Being presented with a question/problem before learning the knowledge or skill leads to improved learning and longer retention of the correct solution, even if what you tried is wrong. Experimental learning, even when the first attempt is wrong, leads to stronger learning when the correct answer or performance is learned.

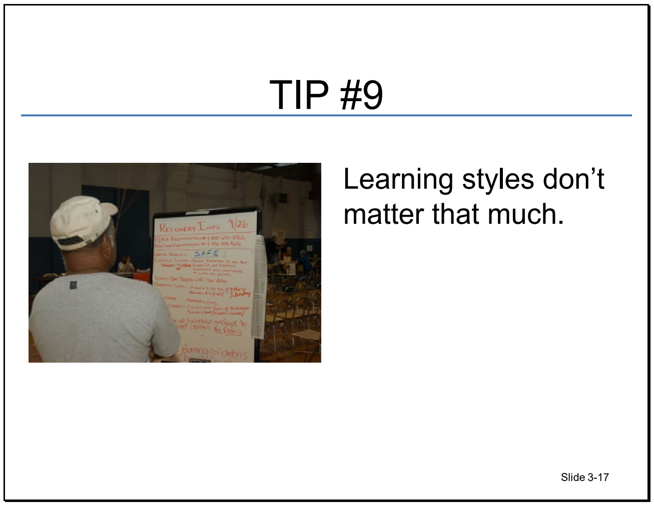
For example, Dr. James Augustine's regular article in JEMS. The Journal of Emergency Medical Services, regularly begins with an incident summary which does not include the content of the article. Once the information is presented, it is then tied into the incident and patient outcome.



8. Tip 8 — We're not that smart.

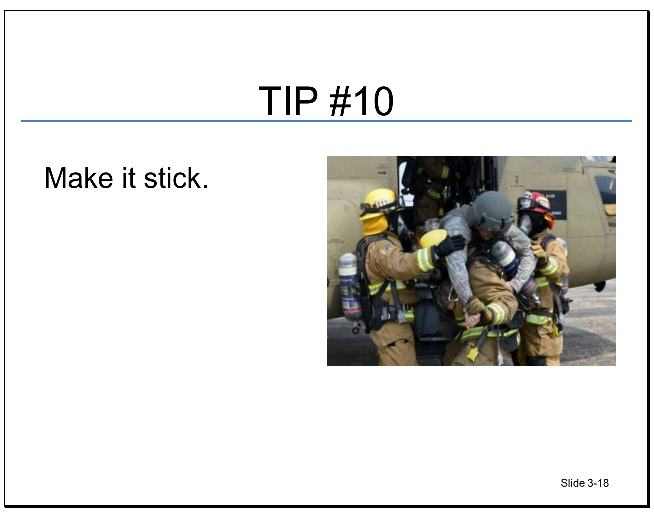
We are hard wired to think we are more confident in our answers and beliefs than we actually are. We overestimate our abilities, have cognitive biases, and unconsciously develop illusions to explain what we don't actually know, then seek evidence that confirms our mistaken beliefs. The term "spatial disorientation" is used in the air industry to explain what happens when flight crews, who are unable to see the horizon, rely on their senses, which are incorrect, and discount the readings of their instruments as wrong when they are working and accurately displaying data. This has led to a number of catastrophic incidents of pilots flying perfectly good airplanes into the earth.

Not only are we not as smart as we think, we also think we are smarter than we are. The effect, known as the Dunning Kruger Effect, has been replicated repeatedly since it was first described in the Journal of Personality and Social Psychology in 1999. In short, the research has shown that if we aren't that good at a skill, we tend to overrate our ability, thinking that we are much better than we actually are. In contrast, when we are good at something, we actually rate ourselves lower, believing that others are better than they actually are. The phenomena has often been described as showing that, "We are all confident idiots."



9. Tip 9 — Learning styles don't matter that much.

While there are learning preferences, they don't matter that much. From an instructional perspective, it means that you should adopt active learning strategies that combine various methods. Spreading out the learning and making it active will improve learning, retrieval and mastery. Focusing on the underlying principles and allowing learners to build on the principles leads to mastery. Most importantly, teach the concepts or skills in the style that fits best. For example, a PowerPoint presentation on building an overflow dam may provide some of the concepts, but building an overflow dam will be better suited to knowledge and skill retention and recall.



10. Tip 10 — Make it stick.

a. Make sure that everyone, including the students, know what works and how to practice. Self quizzes, such as flashcards, result in practice retrieving information. Each time the information is retrieved, it strengthens learning, retention and recall. Flashcards also result in spacing out learning over time. Highlighting and re-reading don't work.

b. Mixing up topics and skills also improves learning. Elaboration, where students add meaning and use to the skill or knowledge, improves learning and skill mastery. Other things that also help strengthen learning include calibration (working to get it closer to completely accurate) and mnemonic devices, such as rhymes.

c. Reflecting on the topic and thinking about scenarios (case studies) help entrench learning, and using information and skills for activities other than what the training focused on, such as using algebra to calculate a variety of things (friction loss, fire flow, budget needs, and apparatus placement and deployment) make retrieval of information easier and stronger.

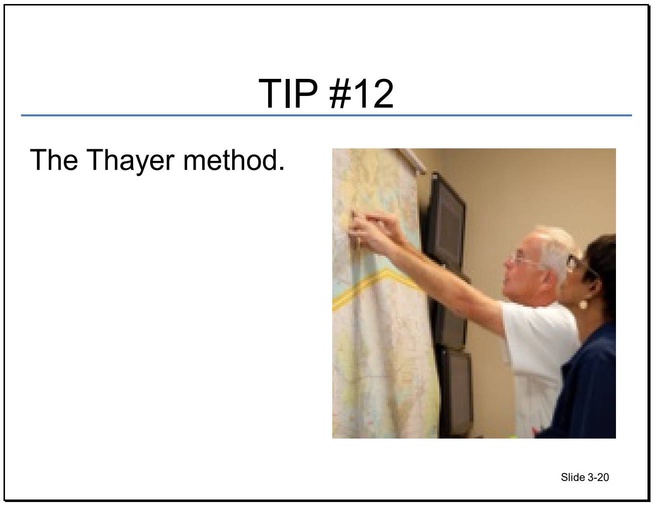
TIP #11

Help learners out.

Slide 3-19

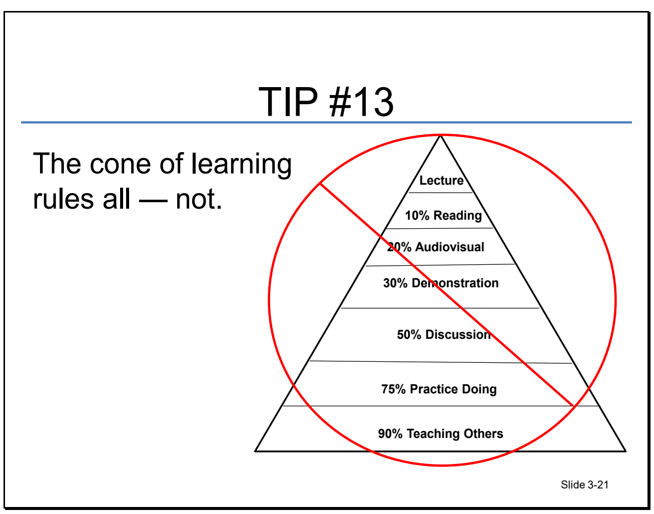
11. Tip 11 — Help learners out.

Things instructors can do to help include sharing what works with students; help students form test groups where they quiz each other; allowing time for free recall; spending several minutes each training day requiring students to write down all that they can remember from the lesson, then using the information to guide the review of material at the next training session. Require students to develop summary sheets that illustrate key ideas from the lesson(s). Similarly, students can write a paragraph discussing the material covered in the lesson.



12. Tip 12 — The Thayer method.

Provide very specific learning objectives for every lesson and course, place the onus of learning on the student, and use quizzes and recitation in every training session. This works at many military academies. The method requires students to be prepared for the training in advance, with the instructor providing activities for application. Students arrive to class prepared, are given problems to solve, and break into groups to apply what they have learned, guiding each other through the process. The groups then discuss the application of what they learned with other students in the session.



13. Tip 13 — There is no such thing as a cone of learning.

The idea that there is a cone of learning, where what is learned falls within a pre-determined range based on how it is presented, is incorrect. The context of learning, what is happening during the learning process, what the subject is, and how testing is conducted, are just three of the variables that impact training. Mixing up training to include interaction and multiple senses improves retention and application of materials.

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ACTIVITY 3.2

Delivery Methods Debate

Purpose

Compare and contrast various methods of training delivery by applying adult learning theory and the anticipated efficacy of delivery methods.

Directions

1. You will break into your assigned teams and be assigned to either speak in support of or opposition to a specific teaching or learning style.

2. You will select a card and return to their groups. Once in your groups, you may swap cards, but cards shall not be swapped between groups.

3. You will spend 5 minutes discussing your debate topic and preparing to defend your assigned position.

4. You will be paired with your opposite, and debate your topic for no more than one minute per side.

5. At the conclusion of each topic, there will be a short debrief to provide comments.

6. There will be a class debrief.

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ACTIVITY 3.3

Learning Strategy

Purpose

Create a learning strategy by selecting appropriate learning delivery methods and tools to improve the knowledge retention, recall, and application for the target audience as described in the assigned scenario.

Directions

Think about which considerations apply to both responders and the public versus unique considerations when creating a learning strategy and selecting delivery method and tools.

Table 1

You are tasked with teaching a hazardous materials operations course (24 hours) to a group of first responders (fire and Emergency Medical Services (EMS). The course follows National Fire Protection Association (NFPA) 472, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents* and includes decontamination mission specific competency. The program is designed to be delivered as 18 hours of lecture, four hours of practical activities, and two hours for a written final exam. Past exams have a 30 percent fail rate.

Table 2

You are tasked with conducting currency training for EMS responders at the Basic Life Support (BLS) level. Student experience levels vary from first recertification period to their third training (three-year cycle). Your service provides BLS first response and responds to an average of 10 EMS calls per day, per station. You have been allotted 24 hours to conduct the training, and it should include CPR recertification, infectious/communicable disease certification, and protocol review. Other topics can be added as needed. The community has wide demographic distribution (as follows):

Race

African American	28 percent
Hispanic	22 percent
White	32 percent
Asian/Pacific Island	15 percent
Other/Mixed	3 percent

Age

< 20 years old	16 percent
21 – 40 years old	48 percent
40 – 60 years old	22 percent
> 60 years old	14 percent

Income (household)

< $25,000	14 percent
$25 – 50,000	55 percent
$50 – 100,000	25 percent
$100 – 250,000	3 percent
> $250,000	1 percent

EMS calls by type

Respiratory/SOB	10 percent
Seizure	4 percent
Cardiac	8 percent
Diabetic	12 percent
Poison/OD	2 percent
Childbirth	1 percent
Other medical	28 percent

Stab/Shooting	1 percent
Assault	1 percent
Injury	15 percent
MVC	18 percent
Fall	6 percent
Other trauma	12 percent

Table 3

You are tasked with developing a currency training program for the department's Community Emergency Response Team (CERT). The CERT program has over 100 active members. Their initial training consisted of Incident Command System (ICS) basics, fire prevention and extinguisher use, disaster first aid, light search and rescue, and disaster awareness. The program you have been tasked with is to provide up to three hours of training per month. The risk profile for your community has the following natural hazards as potential threats: tornadoes, ice and snow, hurricanes and extra-tropical storms, wildfire in the rural areas, flooding, and drought. The area has a variety of light and heavy industries, seven rail lines, and two interstate highways. There are 68 Superfund Amendments and Reauthorization Act (SARA) Tier II facilities, including (1) that stores large quantities of chlorine and (2) that have large quantities of anhydrous ammonia.

Table 4

You are tasked with developing a program for teaching adults about hazard reduction in their homes. The program is designed as part of a community services program, where different departments make presentations to community members over several classes. You may have up to three hours for your presentation, and your presentation will include an orientation to fire-rescue services provided by your organization. Your greatest fire risks are kitchen fires, fires from misuse of electrical equipment, and fires due to misuse of smoking materials. The greatest EMS risks are trip and fall injuries, pediatric drownings, and injuries due to motor vehicle crashes.

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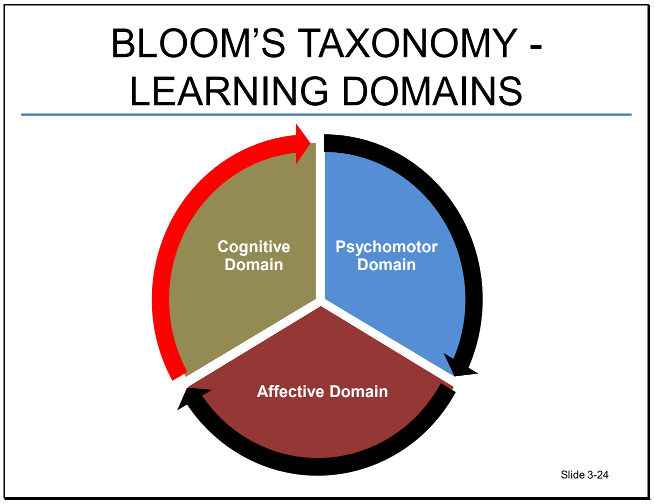
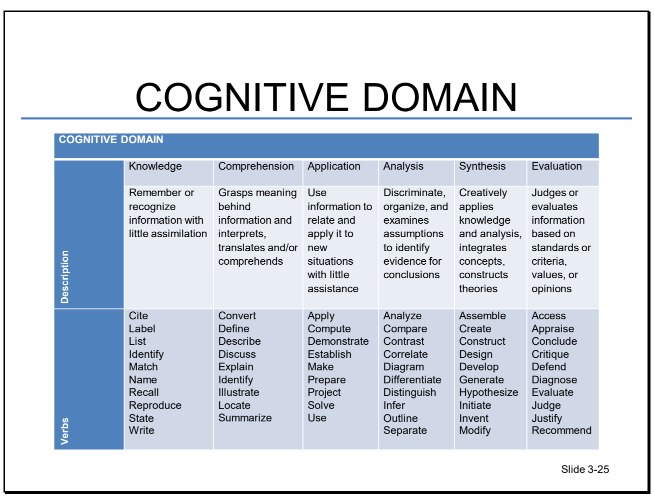
V. BLOOM'S LEARNING DOMAINS



A. The focus of Bloom's work is on higher forms of thinking, not simply transferring facts. His taxonomy or categorization is intended to assist educators in developing training at the appropriate cognitive level.

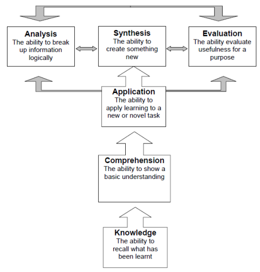
B. Bloom believed that education should focus on "mastery" of subjects and the promotion of higher forms of thinking, rather than simply transferring facts. Bloom demonstrated that most teaching tended to focus on fact-transfer and information recall — the lowest level of training, rather than true, meaningful personal development.



COGNITIVE DOMAIN	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Description	Remember or recognize information with little assimilation	Grasps meaning behind information and interprets, translates and/or comprehends	Use information to relate and apply it to new situations with little assistance	Discriminate, organize, and examines assumptions to identify evidence for conclusions	Creatively applies knowledge and analysis, integrates concepts, constructs theories	Judges or evaluates information based on standards or criteria, values, or opinions
Verbs	Cite Label List Identify Match Name Recall Reproduce State Write	Convert Define Describe Discuss Explain Identify Illustrate Locate Summarize	Apply Compute Demonstrate Establish Make Prepare Project Solve Use	Analyze Compare Contrast Correlate Diagram Differentiate Distinguish Infer Outline Separate	Assemble Create Construct Design Develop Generate Hypothesize Initiate Invent Modify	Access Appraise Conclude Critique Defend Diagnose Evaluate Judge Justify Recommend

COGNITIVE RELATIONSHIPS

Interrelationships Between Bloom's Cognitive Levels



Hall, C. & Johnson, A. (1994) Module A5: Planning a Test or Examination. In B. Imrie & C. Hall, Assessment of Student Performance. Wellington, New Zealand: University Teaching Development Centre, Victoria University of Wellington.

Slide 3-26

PYSCHOMOTOR DOMAIN

PSYCHOMOTOR DOMAIN				
Observe	**Model**	**Recognize standards**	**Correct**	**Apply**
Translate sensory input into skill or task	Recognize standards or criteria needed to perform skill or task	Recognize standards or criteria important to perform skill or task	Use standards to evaluate own performance and make corrections	Apply skills to real life situations
Translate sensory input into skill or task	Recognize standards or criteria needed to perform skill or task	Recognize standards or criteria important to perform skill or task	Use standards to evaluate own performance and make corrections	Apply skills to real life situations

Slide 3-27

AFFECTIVE DOMAIN

AFFECTIVE DOMAIN				
Receiving	**Responding**	**Valuing**	**Organizing**	**Characterizing**
Translate sensory input into skill or task	Recognize standards or criteria needed to perform skill or task	Recognize standards or criteria important to perform skill or task	Use standards to evaluate own performance and make corrections	Apply skills to real life situations
Accept Attend Describe Explain Observe Realize Receive Recognize	Behave Comply Cooperate Discuss Examine Model Respond Show	Accept Adapt Choose Differentiate Defend Prefer Recognize Value	Adapt Adjust Alter Develop Improve Modify Practice Revise	Authenticate Defend Display Internalize Produce Validate Verify

Slide 3-28

ACTIVITY 3.4

Bloom's Taxonomy Classification and Description

Purpose

Given a scenario, apply Bloom's Domains of Learning to classify the domain and level of learning.

Directions

1. Working in table groups, apply Bloom's Taxonomy to identify the domain of learning and the level within the domain that is being addressed by the learning objective.

   a. Define the parts of a 24-foot extension ladder.

   ____

   ____

   ____

   b. Justify the use of community funds to support a community risk-reduction program.

   ____

   ____

   ____

   c. Explain the alignment of providing EMS-based community health with the community value statement.

   ____

   ____

   ____

d. Calibrate a 4 gas meter at an incident scene.

e. Demonstrate the core values of the organization as related to responding to incidents in low income areas.

f. Use a 4 gas meter to determine the parts per million (ppm) in a room when the oxygen concentration drops .5 percent.

g. Determine the amount of progress completed for conversion to an 800 Megahertz (MHz) radio system.

h. Demonstrate how to cut a roof inspection hole using a chain saw.

i. Develop a training program for new SCBAs.

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j. Determine the effectiveness of the community risk-reduction program in meeting the health goals of the community as listed in the community comprehensive plan.

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2. After 10 minutes, review the group answers and discuss any conflicting answers.

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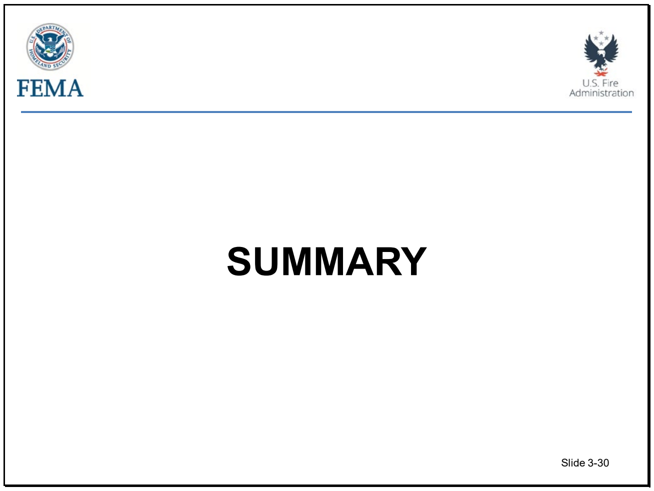
VI. SUMMARY



UNIT 4: ANALYSIS

TERMINAL OBJECTIVE

The students will be able to:

4.1 Formulate thorough analysis and needs assessment in preparation for training design.

ENABLING OBJECTIVES

The students will be able to:

4.1 Summarize the ADDIE process of instructional design.

4.2 Determine if training is the appropriate path to achieve the desired outcome.

4.3 Identify performance failure points.

4.4 Identify appropriate analysis tools and methods.

4.5 Factor applicable compliance and ethical considerations into training analysis.

4.6 Formulate costs, benefits, and risks associated with training.

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FEMA

U.S. Fire Administration

UNIT 4: ANALYSIS

Slide 4-1

OBJECTIVES

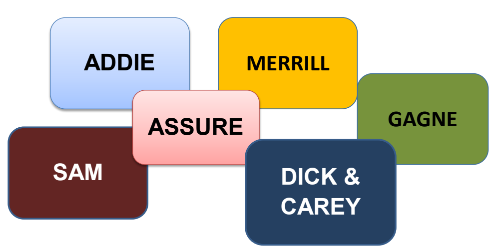
TO: Formulate thorough analysis and needs assessment in preparation for training design.

EO: Summarize the ADDIE process of instructional design.
EO: Determine if training is the appropriate path to achieve the desired outcome.
EO: Identify performance failure points.
EO: Identify appropriate analysis tools and methods.
EO: Factor applicable compliance and ethical considerations into training analysis.
EO: Formulate costs, benefits, and risks associated with training.

Slide 4-2

I. INSTRUCTIONAL DESIGN

INSTRUCTIONAL DESIGN



Slide 4-3

Instructional Design, as defined by the education community, is “the process of identifying the performance, skills, knowledge, information, and attitude gaps of a targeted audience and creating, selecting or suggesting learning experiences that close this gap, based on instructional theory and best practices from the field.”

http://theelearningcoach.com/elearning_design/is-this-instructional-design/

ACTIVITY 4.1

Instructional Design Theory

Purpose

Describe instructional design theories and concepts.

Directions

1. Your table will need to make a three- to five-minute presentation on the key components on an assigned instructional design theory, concept or model to research.

2. The instructor will assign each group a topic:

   a. Table 1: ASSURE instructional design model.

   b. Table 2: Gagne learning theory.

   c. Table 3: Merrill's Principles of Instruction.

   d. Table 4: Dick and Carey model.

   e. Table 5 or instructors: SAM model of instructional design.

3. After each group makes their presentation, each table will ask at least one question about the topic presented.

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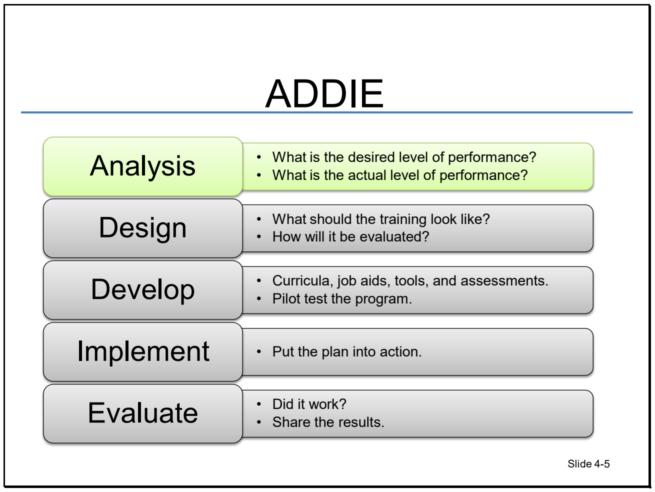
II. ADDIE



A. Analysis: Collect and assess data to determine the desired level of performance, the current level of performance, and the cause of performance deficiency.

B. Design: Frame out objectives and methods of instruction, delivery and assessment to meet the current performance gap.

C. Development: Develop or incorporate commercially available materials to meet the training objectives evaluation instruments and all materials needed to deliver and assess training.

D. Implement: Provide training and assessment; review and adjust training as needed.

E. Evaluate: Evaluate performance and measure against desired performance levels.

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ACTIVITY 4.2

Review of the ADDIE Model

Purpose

Describe the ADDIE process of instructional design.

Directions

1. Each table group will need to make a five- to 10-minute presentation on an assigned facet of ADDIE. Students should draw from their pre-course reading and use the classroom computers to research and develop a presentation based on their assigned topic.

2. Assign each table group a facet.

   a. Table 1: Analysis.

   b. Table 2: Design.

   c. Table 3: Development.

   d. Table 4: Implementation and Evaluation.

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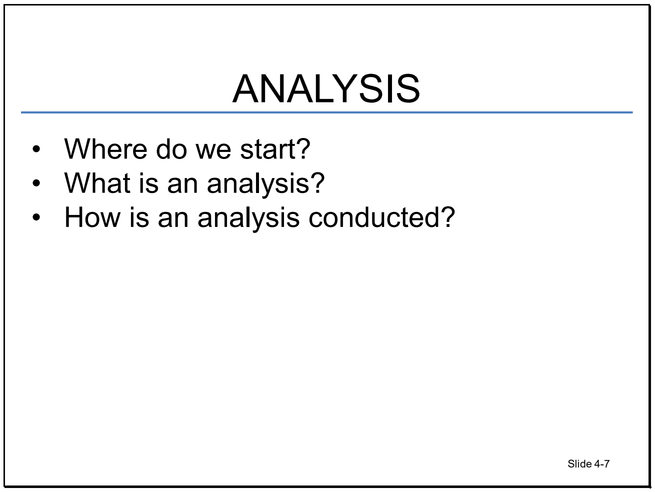
II. ADDIE (cont'd)



F. Benefits of Analysis.

1. Identifies related performance problems.

2. Analyzes both training and non-training causes of problems.

3. Focuses on performance improvement.

4. Meets requirements.

5. Analysis should answer the questions below. Refer to "6 Steps of Performance and Needs Analysis" in required readings for this unit.

   a. What performance problems exist, and what are their impacts? (Standards) (Actuals)

   b. Why do the performance problems exist? (Causes)

   c. What training and non-training interventions will help address these performance deficiencies? (Solutions)

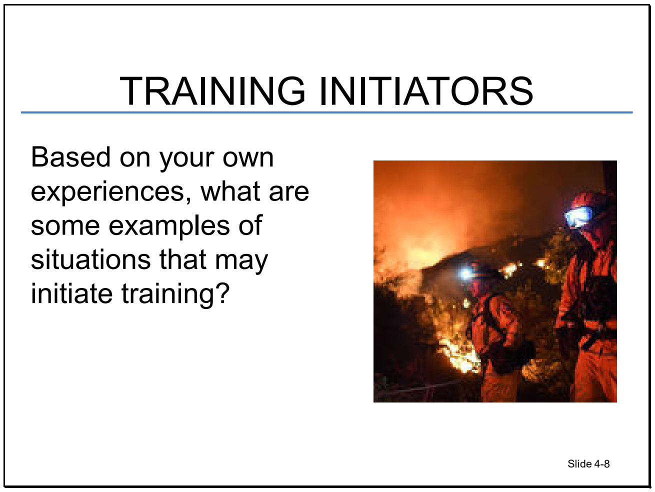
   d. Who needs to receive training, and how do they feel about it? (Feelings)

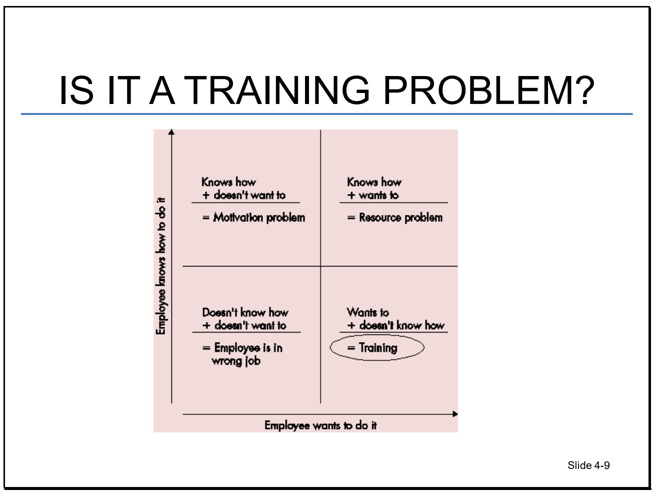
   e. Does new training need to be developed? (Solutions)

   f. What existing training sources will meet current training needs? (Solutions)

   g. What are the unmet training needs? (Solutions)

III. TRAINING NEEDS





A. Analysis is required to determine if training is an appropriate approach.

1. **Training is only one possible intervention to solve performance problems**.

2. Systematic and thorough analysis is essential for determining performance gaps and appropriate interventions.

3. Design and development of effective training programs is based on the findings of well-designed and accurately conducted analysis.

B. Training is often required to maintain professional standards and requirements such as:

1. NFPA Standard for Performance.

2. Standards of Coverage.

3. Insurance Standards.

C. Resources for analysis may include:

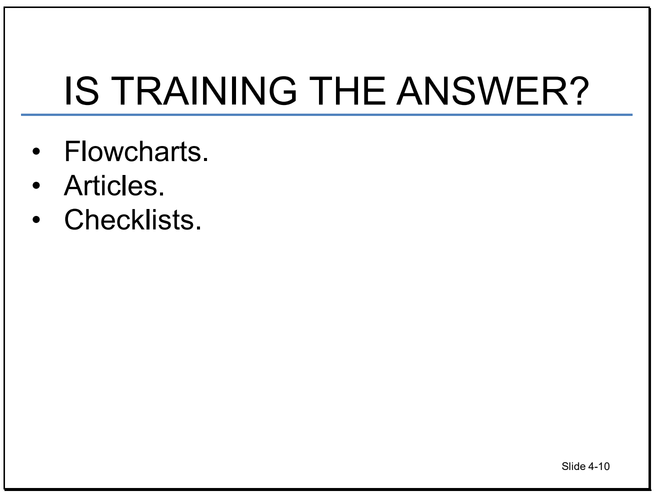
1. NFIRS.

2. NEMSIS.

3. After Action Reports.

4. Documentation analysis.

5. Simulation exercises (to identify performance problems).



D. There are many aids to help determine if training is the solution to performance problems can be found online.

1. Flowcharts

http://blog.cathy-moore.com/wp-content/action-mapping-flowchart-v2.pdf

2. Articles

http://performancetechnology.com/Ptg_pdfs/qp0305stetar.pdf

3. Checklists

https://www.techrepublic.com/article/poor-employee-performance-is-training-the-remedy/

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ACTIVITY 4.3

Initiators of Training

Purpose

Identify the initiator of the training activity for the given scenarios.

Directions

In your table groups:

1. Review each scenario.

2. Consider what is initiating the need for training.

3. Identify the initiator that associates with each scenario and answer the following:

   a. Why is this information valuable?

   b. How does it influence our next action?

Scenario 1

The department has instituted a new program, where companies are rotated out of service to the training ground. While there, they are tasked to respond to and extinguish a variety of fires. A review of the first round of after action reports has indicated that first in companies often fail to secure an initial water supply. Based on this report, a review of the National Fire Incident Reporting System (NFIRS) data was done and it was found that, in violation of the department standard operating guideline (SOG), the second due engine was securing the water supply at nearly 95 percent of fires.

Scenario 2

A review of the National Emergency Medical Services Information System (NEMSIS) revealed that dispatchers were coding 12.8 percent of 9-1-1 Emergency Medical Services (EMS) calls as chest pain. However, EMS providers reported that only 4 percent of the patients treated presented with chest pain as a chief complaint.

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Scenario 3

The State Department of Labor has issued a standard requiring that all EMS providers meet the requirements of the National Fire Protection Association (NFPA) Standard 473, *Standard for Competencies for EMS Personnel Responding to Hazardous Materials/Weapons of Mass Destruction Incidents*.

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Scenario 4

A new industrial facility is being opened in your jurisdiciton. The facility will be the first such facility in your community that operates solely on solar and wind power. Their facility will be equipped with a bank of 72 kilowatt hour (kWhr) battery racks.

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Scenario 5

It is expected that by 2019, the National Highway Traffic Safety Administration (NHTSA) will publish the rules regarding autonomous cars. The first approved autonomous vehicles will likely be commercial vehicles. Your community sits astride two interstate highways and is the hub of a major trucking and transportation center, with thousands of commercial vehicles transiting your jurisdiction every day.

Scenario 6

Following another year of floods, fires and disease outbreaks, your community's elected officials have tasked the department to develop a comprehensive community risk assessment with the intent of developing community risk-reduction activities to begin the process of mitigating and minimizing the impact of emergencies on the community.

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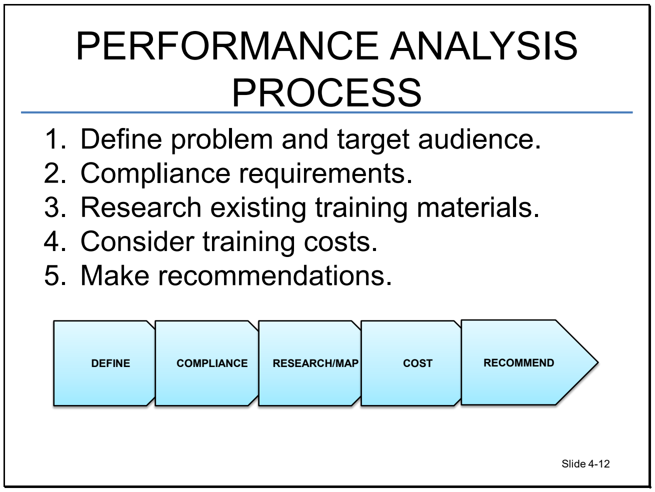
IV. PROCESS



A. Five steps training needs analysis.

1. Performance Analysis and Target Audience Defined.

   Analysis Techniques.

2. Verify compliance requirements.

   KSA/JPR Competencies and Standards.

3. Source, analyze, and map existing training materials.

   Subject Matter Expertise.

4. Training Costs.

   Analysis for community training.

5. Make recommendations.

   Analysis and planning for community training to feed recruitment efforts.

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ACTIVITY 4.4

Performance Analysis

Purpose

Given a scenario, evaluate the situation and target audience to hypothesize the cause of performance failure.

Directions

In table groups, review the following scenarios and identify the likely cause of performance failure and a possible remedy.

Scenario 1

Engine company drivers are tasked with securing water, throwing a ground ladder to a 2nd floor window, deploying a smoke fan perpendicular to the front door, and lighting the front of the building. The smoke fan on your engine is located adjacent to the hose bed and is difficult to remove with one person. As a result, the driver does not deploy the fan, which is resulting in decreased performance.

Scenario 2

Fire department personnel are tasked with conducting home fire safety examinations. They currently use a checklist/job aid as the exam template; however, there has been no formal training on the process. Recently, a home that received an exam had a significant fire in which cords running under carpet was listed as a factor.

Scenario 3

The department is instituting a new patient care reporting system that will run off of tablets, replacing the current PC-based software.

Scenario 4

The hospital has placed a docking station for EMS personnel to finish their patient care reports and upload them into the hospital's system. The workstation is located in a busy corridor, along a wall. There is no place for EMS personnel to sit down or to have privacy. Patients are often walking up to personnel who are entering data and interfering with their work. The nursing staff has made it clear that EMS staff are in the way when they use the station.

EMS personnel are leaving the hospital without completing or uploading their reports, resulting in delays in getting information into the hospital system. As the hospital also serves as the billing contractor, this is resulting in delayed payments.

Scenario 5

The department will be experiencing significant turnover in its leadership ranks over the next five years, with 90 percent of department leadership expected to leave. Personnel in the lower ranks have not sought the required training needed for advancement and only a handful are qualified for promotion. The department has offered to host the classes needed, but few have expressed an interest in taking the classes. As one member put it, "If no one is qualified, it doesn't matter because they have to promote someone."

Scenario 6

The department currently responds in a single advance life support (ALS) ambulance, staffed with three people, to all reports of cardiac arrest. A review of medical reports has indicated that the administration of drugs and defibrillation are consistently longer than required by medical protocols. As a result, the out of hospital cardiac arrest outcomes for the community hover near 0 percent.

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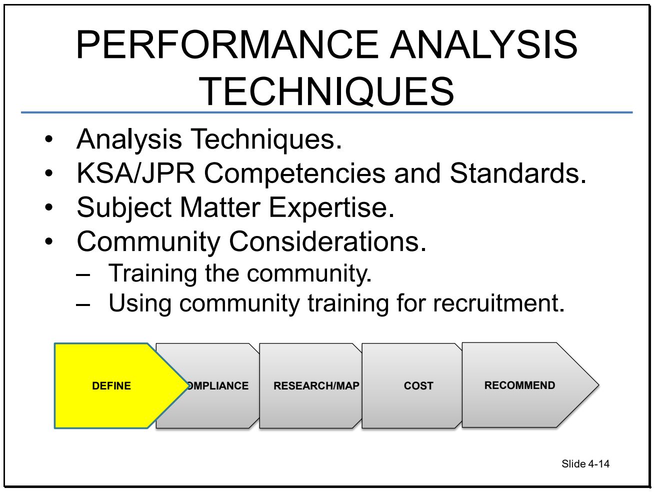
IV. PROCESS (cont'd)



B. Analysis Techniques.

1. Several analysis techniques provide opportunities to determine actual conditions and standards of performance.

2. It is essential to determine the appropriate method(s) of inquiry to obtain the necessary information.

3. The analysis must contain an explanation of discrepancies between an actual condition or state and a desired standard — otherwise known as the gap.

4. Three useful performance analysis techniques will be discussed:

a. Documentation (existing data) analysis.

- Examines the documented results or accomplishments related to a particular knowledge or skill.

- It doesn't look at what an individual or group does, but rather at the results of that performance.

- Performance appraisal documentation or EMS response logs are examples of documentation.

- It answers questions such as:

-- What functions or tasks received unsatisfactory ratings?

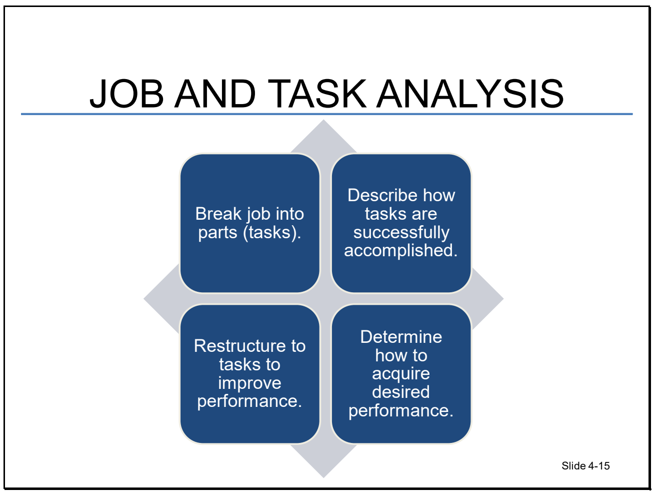
-- What kinds of requests were received?

-- What do the exit interviews say?

-- How many letters of appreciation were received?

-- How many and what kinds of complaints were received?

-- How many calls were received during a particular time frame?



b. Job/Task analysis.

As we mentioned before, task analysis is one of the primary techniques for analyzing performance problems. It can provide information about optimal skill performance.

Occasionally, under the right conditions, you may also be able to use this as a way to gather information about the average performer to make inferences or observations about possible causes for non-standard performance.

Job and task analysis is a four-step process.

- Step 1: Break the job into component parts. Parts are described in short sentences called task statements. Examples of task statements:

  -- Interview applicants.

  -- Fill out forms.

-- Supervise instructors.

-- Turn on meter.

-- Task statements all have actions performed (begins with an action verb) and the objects involved in the performance. For example, possible task statements for “developing a hazard mitigation plan” might include:

Identify needs.

Define goals and objectives.

Identify range of alternative measures.

Select a set of criteria to judge.

Acceptability of measures.

Adopt and implement measures.

Monitor, evaluate and adjust the plan.

-- The information needed to develop these task statements can be obtained through a variety of methods:

Interview.

Questionnaire.

Reviewing documents.

Observing master or other performers.

- Step 2: Describe how tasks are successfully accomplished. The second step in job/task analysis is to describe how the tasks are done. This means discovering things like sequence and relationship, as well as details such as needed equipment and materials.

  - A detailed task description is a very time-consuming effort and is usually done for only the most critical tasks. Usually a master or "star" performer is observed doing the task. The analyst lists each detail performed and the order of each event. There are various methods for organizing the information gathered, including basic task description techniques, as well as more sophisticated stimulus response charting and flowcharting.

- Step 3: Restructure tasks to improve job performance. The third step in job/task analysis is to restructure the parts to form an improved task and to define new learning requirements.

  - The descriptions of what and how a task is done are heavily dependent on the behavior of the star performer. However, it is possible that even the best performers could do the job better, more efficiently, or more effectively.

  - After the task behavior has been described, it is compared against correct performance. Poor results, low quantity, or poor quality indicate that the job could be done better.

  - The difference between what the task should be and what it is currently is the key to relationships and discrepancies that may suggest possible solutions.

  - The analyst or training professional has a responsibility to show how it can be done better.

  - The main goal of this step is to identify and solve inadequate task performance.

- Step 4: Determine how to acquire the desired performance. The fourth and final step in job/task analysis is to determine how to acquire or learn the tasks, skills and knowledge associated with performance.

  - If you have determined that training is the solution, this will help the training professional in determining the best instructional methods or other tools needed.

-- Sometimes analysis results in job aids used in simple on-the-job training (OJT) that eliminate the need for formal training. Examples of job aids:

Flowcharts.

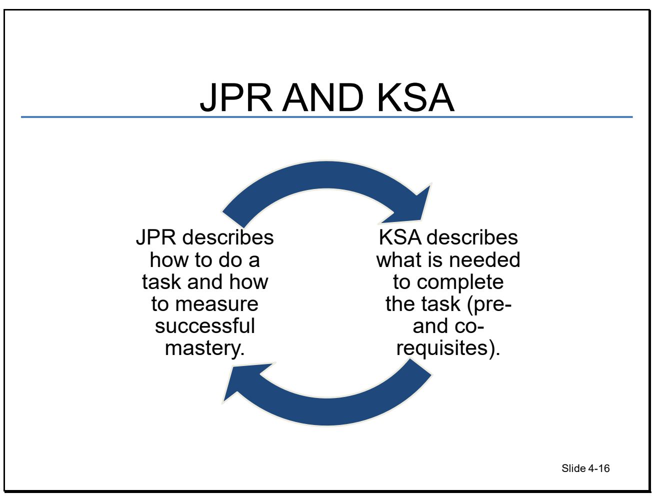
Decision tables.

Progress charts or checklists.

Equipment templates.

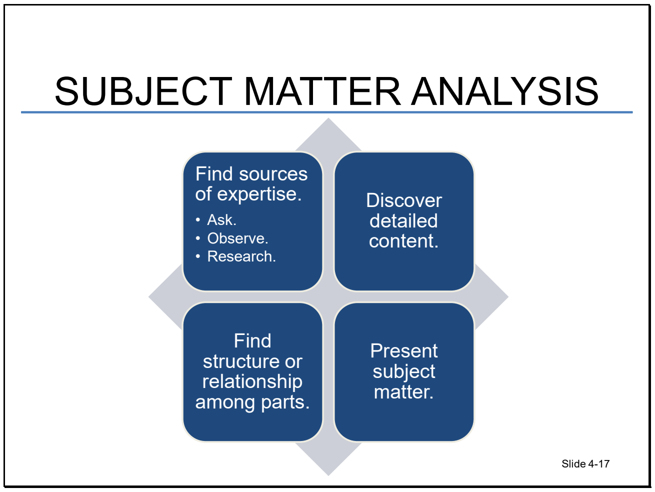
Completed “sample” forms.

-- Other situations demand formal training to improve performance. Topics for necessary training may be discovered during task analysis. If a training need is discovered, the training professional must also identify objectives, sequences and content in the design phase.



c. KSA/JPR competencies and standards.

- Analysis determines the KSAs and steps to complete the task (what to do) and a JPR takes the steps, lists them in order, and identifies what success looks like (how to do it).Task and subject matter analysis identify the prerequisite KSA’s needed to complete tasks and sub-tasks needed to master performance. A well written JPR should include all of the steps and measures needed to ensure 100% compliance for task completion and assessment.



d. Subject matter analysis focuses on requisite and actual knowledge, thereby enhancing task analysis to determine training content need.

- It includes a search for the details of what a person has to know to enable him or her to complete the task.

  -- What knowledge is needed to use and maintain a piece of communication equipment?

  -- What knowledge is needed to effectively complete a Rapid Needs Analysis?

  -- What knowledge is needed to complete reliable damage assessment inspections?

- Subject matter analysis also seeks information about the optimal way to do a job, but focuses on what a person has to know to do it that way.

- Along with what is discovered in task analysis, the information gathered in subject matter analysis often serves as the basis for training programs and job aids.

- When training is indicated for the introduction of something new, such as a policy or technology, subject matter analysis is the major performance analysis approach.

- With new technologies, there won't be much documentation to examine and there won't be star performers to observe.

- For an ongoing job, subject matter analysis must also include the discovery of what distinguishes the ideal performer from the unsatisfactory one.

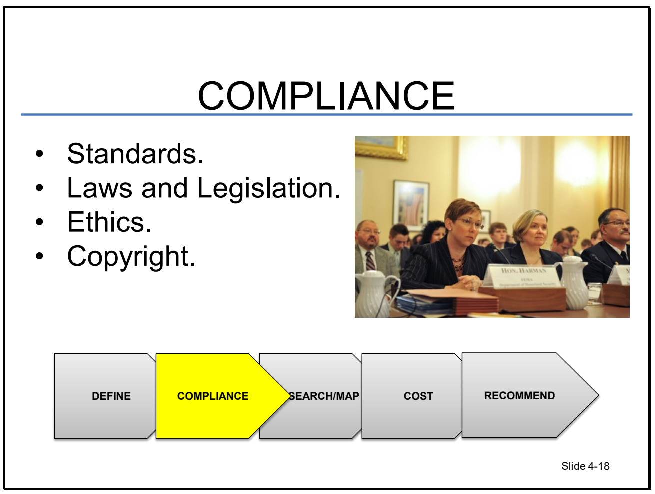
- It may be accomplished by following four steps and working with subject matter experts throughout the process.

  -- Find sources of expertise.

  -- Discover detailed content.

  -- Find the structure or relationship among parts.

  -- Present subject matter.



C. Compliance requirements.

1. Standards, Law and Legislation.

   a. Standards are agreed upon metrics that govern the conduct in an industry or jurisdiction. In the fire and emergency services, unless required by law, standards have recommendation authority only. However, in the event of a civil suit or an investigation by a legal body, such as OSHA, standards may be considered as industry best practices and have weight in the investigation or be used as evidence in a trial.

Examples:

- NFPA standards are consensus standards developed by committee. The NFPA establishes committees with representatives from various stakeholder groups providing discussion and comment. While not established as laws, jurisdictions may choose to adopt them. In addition, they may be used as the benchmark for establishing the standard of practice when evaluating actions against the General Duty Clause or similar regulations. Over 140 of the standards impact training, with NFPA Standard 1001, Standard for Fire Fighter Professional Qualifications, being the best known.

- Coverage: NFPA has developed response standards based on personnel and apparatus response, as have insurance rating organizations. In addition, jurisdictions may develop their own response standards, dictating desired response coverage.

- Insurance: Standards used to establish insurance rates. There are several insurance standard setting systems in use. Depending on the rating system, training and public education are weighted and included in the total score.

2. Law and Legislation.

a. Legislation is an act passed by a legislature. Case law is the law that accumulates as a result of court decisions and applies to all. (Act is situation-specific, as it all the provisions relating to a particular situation only.)

b. Regulations are put in place to provide a process by which a law or legislation is followed.

c. A minimum level of training is required by fire and emergency services organizations by federal, state and local laws. In addition, consensus standards, such as those of the National Fire Protection Association (NFPA), also impact what training is delivered and the competencies demonstrated by responders.

d. Organizations that fail to meet the minimum legal requirements are subject to potential criminal or civil liability; failure to meet generally accepted industry consensus standards may lead to civil penalties.

e. Trainers, whether assigned training officers or company officers who are responsible for company-level training, should demonstrate and document training that meets the minimum legal requirements and the needs of the organization.

f. The training required by emergency service providers falls within a variety of federal laws and is overseen by a variety of agencies, including OSHA, U.S. Department of Labor (DOL), Environmental Protection Agency (EPA), U.S. Department of Education (DOEd), and the U.S. Department of Transportation (DOT).

g. OSHA is responsible for overseeing hazards at work, as well as defining and regulating hazards in the workplace. OSHA has the ability to investigate and levy fines for non-compliance. Some states have chosen to assume the role of OSHA within their states. This places the role of OSHA on a state agency. The state agency is able to establish standards that are more restrictive than OSHA, but are not able to enact workplace safety standards that are below the OSHA threshold.

- OSHA Violation Penalties.

  -- DeMinimis Notice $0.

  -- Non-serious $0 - $7,000.

  -- Serious $1,000 - $7,000.

  -- Repeated $0 - $70,000.

  -- Willful $5,000 - $70,000.

  -- Failure to Abate Notice $0 - $7,000/day.

- While OSHA gets much of the attention, trainers are also impacted by a variety of federal laws which regulate pay and work hours, pollution, access to training and educational records.

h. Department of Labor (DOL). Pay for workers in the United States is regulated by the Department of Labor, under the Fair Labor Standards Act. The Act determines rates of pay and work hours. Typically, personnel who engage in fire suppression activities are eligible for overtime after working an average of 53 hours in a work week. EMS providers who do not engage in fire suppression activities, even when working for a fire department, are eligible for overtime after 40 hours of work. The law also details what constitutes a work week and may allow organizations to avoid compensation for time spent sleeping. State laws, such as in New York, may mandate a shorter work week for emergency responders.

i. Environmental Protection Agency (EPA). While often not considered, fire department training may impact the environment, especially air and water quality. Emergency services training, especially training that involves fire and has water run-off, may run afoul of EPA regulations.

j. Accessibility Agencies and Legislation that ensure access to training are critical when analyzing training needs. Trainers must ensure that training is appropriate, applicable, and accessible to all trainees. There are a variety of regulations, including the Americans with Disabilities Act, the Rehabilitation Act, Age Discrimination in Employment Act, and the Family Education and Privacy Rights Act.

ACTIVITY 4.5

Regulation Review

Purpose

Anticipate the impact of various regulations on emergency services training.

Directions

1. In your table groups, select a regulation that directly impacts emergency services training and one that directly impacts performance. For example, the Americans with Disability Act (ADA) impacts training and the Fire Brigade Standard impacts performance. Each regulation can only be selected once.

2. Research the standard, including its intent and requirements for compliance.

3. Prepare a short (three to five minute) formal presentation on the groups findings.

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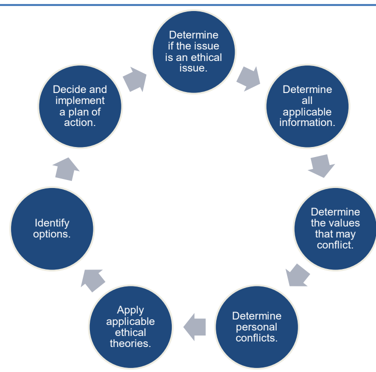
IV. PROCESS (cont'd)

ETHICS

Slide 4-20

STRUCTURE FOR SOLVING ETHICAL DILEMMAS



Slide 4-21

D. Ethics.

1. Ethics are moral principles that govern a person's behavior or the conducting of an activity. An ethical dilemma is having to make a decision while morally conflicted.

2. Importance of Ethical Behavior.

   a. Ethical behavior is a cornerstone of the emergency services profession. Emergency services values placing the welfare of others before personal gain and recognition which becomes the foundation of trust between emergency services and the public.

b. As a result, emergency responders are generally given the benefit of the doubt when questions arise. However, as a result of this bond, when responders violate the trust of the public, the actions are not viewed as an aberration, but often are seen as a reflection of the department and its personnel.

c. **All** responders carry the weight of public perception.

d. The fire and emergency services are viewed as being trustworthy. As a result, ethical behavior is critical to maintaining the trust of the community and other responders.

e. Regardless of department make up, fire and emergency services are funded by tax dollars and serve in the public trust. The expectation of ethical behavior carries over to the selection, training and career development of department personnel.

3. Ethics and Training.

a. Time.

- Are you signing off training for a-longer time than it lasts?

- Are you devoting the time to training that is necessary?

- Are you training to a time standard or a performance standard?

b. Equity.

- Are you approving acceptance into training programs equally?

- Are you approving time off for training equally?

- Are you designing training for everyone or does it exclude certain groups?

c. Testing.

- Is test scoring standard? Fair? Honest? Performance based?

d. Performance.

- Are you using the appropriate instructors?

- Are instructors teaching to objectives?

e. Documentation.

- Documenting the training process, from initial analysis of why training is needed to the completion of training, is critical to limiting liability. The entire training process, if done incorrectly, is subject to challenge and may be implicated in suits involving hiring, assignment and promotion. In addition, any response to an incident where a worker, whether assigned to the agency or not, is injured on a work site, may result in an investigation of training records and documentation.

- Training officers should document:

  -- Training analysis and the reason for training.

  -- Validity of training.

  -- Training program design and development process.

  -- Training procedures.

  -- Training evaluations and validation of training.

  -- Individual and unit performance.

  -- Incidents that occur during training.

  -- Injuries.

  -- Dates, times and attendance records.

  -- Lesson plans.

  -- Prop, equipment and facility use and condition.

  -- Copyright releases.

f. Identity potential ethical conflicts.

- Determine core values that may conflict.

- Determine personal conflicts.

- Apply applicable ethical theories.
- Identify options.
- Decide and implement a plan of action.

ACTIVITY 4.6

Ethical Considerations

Purpose

Describe ethical theories as related to public service.

Directions

1. On the evening of the second night, review the video assigned.

2. During the third day, you will be assigned time to develop a two- to three-minute presentation on the key concepts from your assigned viewing.

3. The instructor will assign each group a video:

   a. Table 1: Ethics, Law and Morality. https://www.youtube.com/watch?v=bdVo4Fulh-M

   b. Table 2: Integrity Systems. https://www.youtube.com/watch?v=4CeU_FfC9ZE

   c. Table 3: How you can interact with others to promote ethical practices? https://www.youtube.com/watch?v=nLpux9KF7gU

   d. Table 4: Why do codes of ethics matter? https://www.youtube.com/watch?v=VCPq4OdqGHY

4. After each group makes their presentation, each table will ask at least one question about the topic presented.

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ACTIVITY 4.7

Ethical Behavior

Purpose

Describe ethical behavior when confronted by an ethical dilemma.

Directions

1. In your table groups, discuss the following scenarios and develop consensus on what action(s) should be taken.
2. Be prepared to discuss and defend your conclusions with the class.

Scenario 1

Your community is composed of approximately 40 percent minority population, with the surrounding county having a minority population of 5 percent. No department personnel live within your jurisdiction. While your department is career, the surrounding areas are served by volunteer departments. Within the state, only members of fire departments can be trained by the state training agency. The entrance exam for the department is a Firefighter II exam. All candidates will be required to attend a recruit academy that will certify them to the Firefighter II level.

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Scenario 2

You are providing refresher training in EMS for your department. You are advised that everyone needs to pass the class or the chief will not be pleased. You are given a copy of the test from the proctor the day before the class. While this is a violation of the test security standard operating guideline (SOG), she wants to make sure that everyone passes. On the test day, you review the test verbatim prior to the proctor arriving.

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IV. PROCESS (cont'd)

E. Copyright and Fair Use.

The use of training materials, such as books, videos and online resources, are protected by copyright laws. While common, the use of copyright materials in training without permission opens trainers and organizations to significant liability. With few exceptions, every piece of work created is assumed to be copyrighted, unless otherwise specified.

1. Copyright.

   a. Copyrighted material and education brings with it many questions. In this section, we will examine various copyright laws relating education and training.

   b. There are many high-profile cases where an organization used copyrighted material without permission and was subsequently sued by the copyright holder. These lawsuits can subject the organization to significant penalties.

   c. In most cases, the organization holder needs to secure a release to use the copyrighted material, but there are some exceptions to this rule. These exceptions are found in the TEACH Act and Fair Use, which we will cover in greater depth shortly.

      - Educators do have some flexibility in regard to using copyrighted material in the classroom or online.

      - The laws governing the use of copyrighted material are complex and have many "gray areas."

- The two most prominent copyright laws are:
  - -- The TEACH Act.
  - -- Fair Use.
- Developers and course instructors need to be mindful of copyright laws.
  - -- Lawsuits for copyright violations are commonplace in the education sector.

2. Options for using copyright materials.

   a. If you want to use copyrighted material in an educational or training setting, these are your main choices:

      - Use Public Domain material.
      - Obtain licensing for copyrighted materials.
      - Exercise Fair Use.
      - Exercise the TEACH Act.

   b. In an effort to provide educators and trainers with the means to use small parts of copyrighted works in the classroom, a law known as Fair Use was passed in 1976. Although the law allows the use of copyrighted material in the classroom, it is complex.

   c. Fair Use is a copyright principle based on the belief that the public is entitled to freely use portions of copyrighted materials for purposes of commentary and criticism (Copyright Act of 1976, 107).

3. Fair Use.

   a. This visual lists the main criteria that decides whether a copyrighted work is eligible for use under Fair Use.

   b. Copyrighted works may be fairly used if they:

      - Involve a relatively small portion of the work.
      - Are used for educational or other noncommercial purposes.

c. Do not deprive the copyright owner of income or undermine a new or potential market for the copyrighted work.

d. Copyright "Fair Use" example:

- "A classic example is quoting a few sentences or paragraphs of a book in a class paper. Other uses may also be fair, but it is almost never fair to use an entire work, and it is not enough that you aren't charging anyone for your particular use. It also is not enough simply to cite your source (though it may be plagiarism if you don't)."

- Excerpt from virtual legality by Steve McDonald, former associate general counsel, the Ohio State University.

4. TEACH Act of 2002.

a. The TEACH Act is another copyright act intended to give trainers and educators the ability to use copyrighted material without securing a specific release from the copyright holder.

- The TEACH Act is a copyright law that provides educators with a separate set of rights in addition to Fair Use. It allows educators to display others' works in the classroom and, in certain cases, online.

- TEACH Act only applies to a "government body or an accredited nonprofit educational institution."

- TEACH Act allows educators to use limited portions of works that previously required permission and/or licensing.

- Important: TEACH Act does not allow use of works produced primarily for educational purposes.

  -- Allows storage of copyrighted materials on a server.

  -- Digitized versions of works can be made that are not already available in a digital format.

  -- Digital works with no encryption can be used.

b. TEACH Act: Distance learning.

- Copyrighted content that an instructor would display or perform during a classroom setting can now be used in a Distance Learning course.

- There are some exceptions.

  -- The performance must be related to the teaching content.

  -- The performance or display must be technologically limited to enrolled students.

  -- Transmission must be encrypted and/or password-protected.

  -- This is probably the most restrictive portion of the TEACH Act, as it can be very difficult to remove the material after each session. Depending on what source you reference, the definition of "each session" varies considerably.

- If using TEACH Act material in the classroom you cannot retain copies past the class session.

c. Comparison of TEACH Act and Fair Use.

- The TEACH ACT and Fair Use have some overlap as both were intended to be used for similar purposes.

- The TEACH Act creates a safe harbor for institutions. Individual instructors who commit copyright infringement remain liable under the TEACH Act.

ACTIVITY 4.8

Copyright and Fair Use

Purpose

Determine if the use of material is Fair Use or if copyright permission is needed.

Directions

In table groups, determine if the following scenarios meet the definition of Fair Use or require a copyright release prior to use. Be prepared to justify your determination (cite your sources).

Scenario 1

The day prior to conducting a citizens CPR course, there is a news segment on the local channel where a citizen successfully performed CPR on a shopper at a local grocery store. You download the segment and show it in class.

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Scenario 2

There is a news segment on the local channel where a citizen successfully performed CPR on a shopper at a local grocery store. You download the segment and show it in your citizen CPR classes, which are held on a monthly basis at the fire station.

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Scenario 3

You find a really good YouTube video demonstrating how to install smoke detectors in the home and incorporate into the Firefighter II course at the training academy.

Scenario 4

You insert links to the FireLaw blog and direct trainees to an article on fire service liability as part of the company officer training academy.

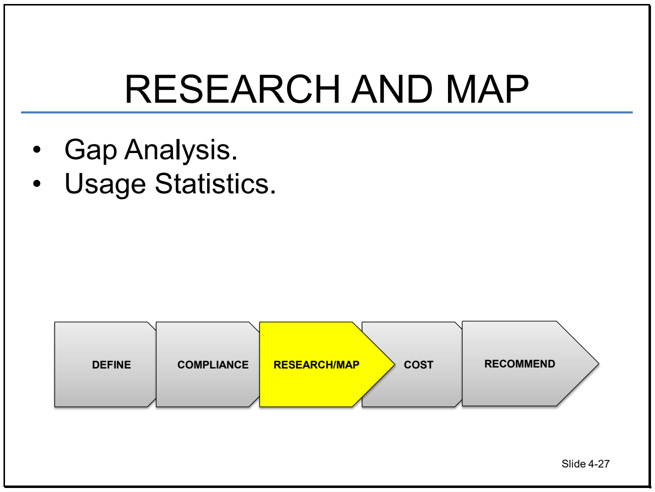
Scenario 5

You borrow a fire simulation program from a neighboring department and develop simulations for your department.

Scenario 6

You borrow a fire simulation program from your department for a course in tactics you teach at the community college. Of the 15 people in the class, 10 are from your department.

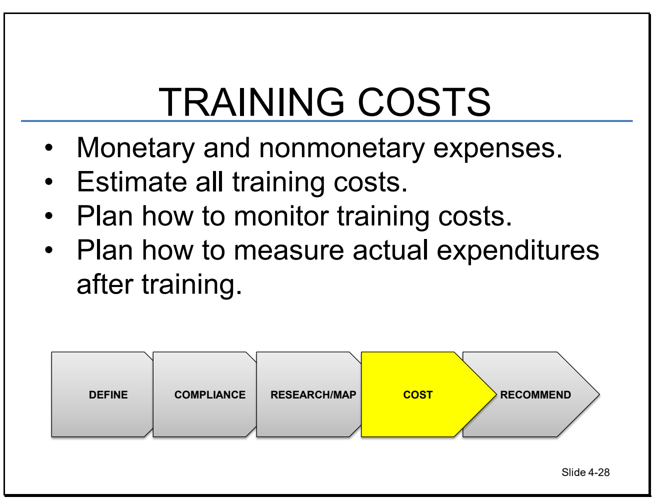
IV. PROCESS (cont'd)



F. Map Existing Training Materials.

1. Conducting research that identifies a performance gap and its impact, will provide context and priority to training need and how it fits in with the overall training program. As a reminder, a training program is a larger training structure that encompasses the overarching training goal and may consist of multiple training plans and/or courses.

2. It is important to determine how far from the standard the level of performance is. As part of this process, analyze a variety of sources to describe the current and desired levels of performance. Once that has been described, it is important to map how the gap impacts the desired training program, organizational outcomes, and create a path between current performance and desired performance. This path will be mapped out, linking steps in the training process, and moving the training plan into the training program.



G. Training Costs.

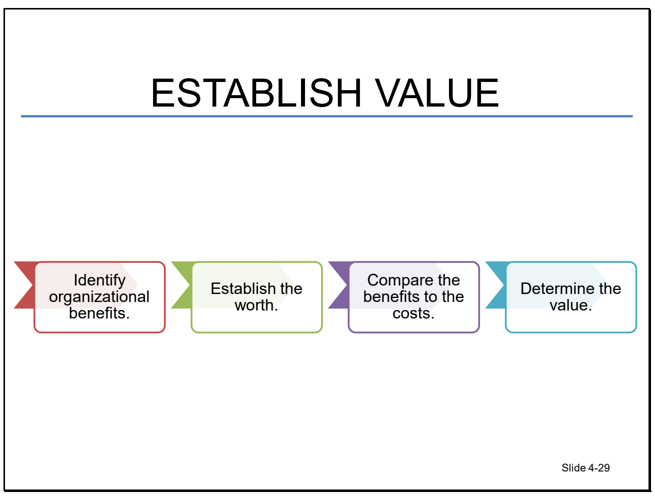
1. If you decide that you will conduct an organizational results evaluation, you will need to determine the cost of providing training. Determining costs involves identifying all monetary and nonmonetary expenses associated with training, deciding which costs to collect data on, and then calculating the total training costs.

2. Estimating Training Costs Before Training: It is important to estimate training costs before the training occurs. The best way to predict training costs is to analyze the actual costs of previous programs from the needs analysis phase through evaluation.

3. Monitoring Training Costs During Training: Training costs should also be monitored during training, and continuously compared with the budgeted and estimated costs. Although some cost adjustments may be necessary during training development and implementation, you should try to stay as close as possible to your projected costs.

4. Determining Actual Expenditures After Training: After training is over, you should determine what was actually spent and compare that to your projected costs. If there are discrepancies between projected and actual costs, you should try to determine where and why these occurred so that you can avoid similar inefficiencies in future training programs.

Common Factors Overlooked in Quantifying Organizational Results	
Factor	**Description**
Payback Time Period	Continued benefits of training beyond the training period. In determining the value of training, it is important to consider future "payoffs."
Other Benefits	Other benefits may be derived from the training, such as decreased grievances, improved morale, or increased productivity. Often, evaluators sell their training short by measuring only the benefits that are most easy to quantify or by failing to measure "spinoff" benefits.
Cost of Not Intervening	There may be future costs if the problem continues. Some problems tend to get worse over time.
Nonmonetary "Payoffs"	It may be wrong to assume that the organization's only value is the bottom line.



H. Steps for Establishing Value.

Establishing the value of training involves the following four steps:

1. Step 1: Identify organizational benefits.
2. Step 2: Establish the worth.
3. Step 3: Compare the benefits to the costs.
4. Step 4: Determine the value.

Organizational Benefits	Indicators
Increased Outputs	Number of products produced or services provided Number of processes completed Amount of backlogged work
Time Savings	Amount of "nonproductive" time Amount of sick leave and/or tardiness Amount of overtime Amount of "break-in" time for new employees Equipment "down time"
Improved Quality	Amount of positive versus negative feedback from "customers" Amount of positive versus negative results of external audits and inspections Amount of "rework" required Number of innovative solutions or products developed Amount of employee involvement in decision-making Changes in employee morale/motivation Frequency of communication within the organization Number of grievances and other personnel problems
Error Reduction	Number of errors Number of safety-related complaints from employees and "customers" Number of safety problems Number of accidents Number of rule/procedure violations

ACTIVITY 4.9

Costs and Benefits

Purpose

Determine the costs and benefits associated with a training course and identify effective methods and potential tools.

Directions

This is an overhead activity. One student will be asked to scribe while tables identify:

1. Training needs and the benefits of training.

2. Obvious and hidden costs.

Scenario

You are proposing a company level training program on responding to firefighters trapped by collapsed, hanging ceilings. There are five engine companies staffed with three personnel, two truck companies staffed with three personnel, three paramedic ambulances staffed with three personnel, and one heavy rescue company staffed with five personnel, all spread over three shifts that will need to go through training. Your department has a small training facility which consists of a single, portable classroom and a four-story smoke building with four 10-by-10 rooms.

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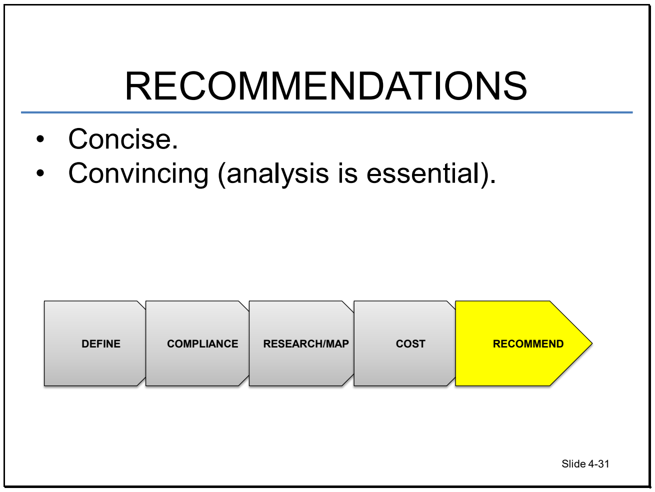
IV. PROCESS (cont'd)



I. Making Recommendations.

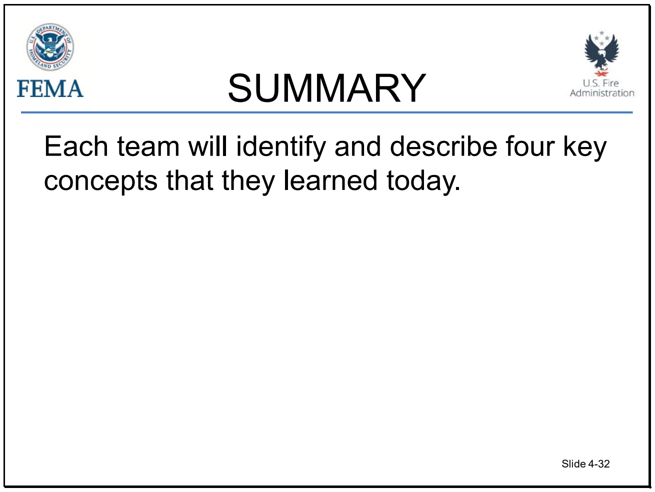
1. When developing a proposal for training, a process that capitalizes on the transformational model is used when requesting support from policy-makers and leadership. For this course, the final project and presentation reflects this process.

2. Written products are designed to provide a brief overview of the process, with larger documents used for support. For this course, the presentation made is for policy-makers (commissioners, board members, etc.) and should be no longer than two (2) pages long. Policy-makers are faced with many issues which compete for their limited time and attention. The ability to be concise and convincing is critical to the success of the proposal.

3. The paper will begin with an executive summary which describes/provides an overview of the problem, including why it is a problem, the remedy selected, costs, and impact on the community. The second section will provide detailed information on the issue, why it is an issue, and its impact on the community.

4. The second section, the issue, describes the community outcome and expectation, the current state, the gap between them and why the gap is an issue (impact of the issue). Next, options for addressing the issue will be briefly described. This is followed by discussing the remedy selected, why it was selected, describing how it will correct the gap and what the costs and resources needed to implement the option are. Finally, the summary reflects the information contained in the paper, highlighting the community-based outcomes and how they will be addressed.

V. SUMMARY


FEMA
SUMMARY
U.S. Fire Administration
Each team will identify and describe four key concepts that they learned today.
Slide 4-32

UNIT 5: DESIGN AND DEVELOPMENT

TERMINAL OBJECTIVE

The students will be able to:

5.1 Design training materials using sound instructional design.

ENABLING OBJECTIVES

The students will be able to:

5.1 Create enabling and terminal objectives.

5.2 Align training content with objectives.

5.3 Design effective learning activities.

5.4 Evaluate and select technology to support the training design.

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FEMA

U.S. Fire Administration

UNIT 5: DESIGN AND DEVELOPMENT

Slide 5-1

OBJECTIVES

TO: Design training materials using sound instructional design.

EO: Create enabling and terminal objectives.
EO: Align training content with objectives.
EO: Design effective learning activities.
EO: Evaluate and select technology to support the training design.

Slide 5-2

I. DESIGN DEFINED

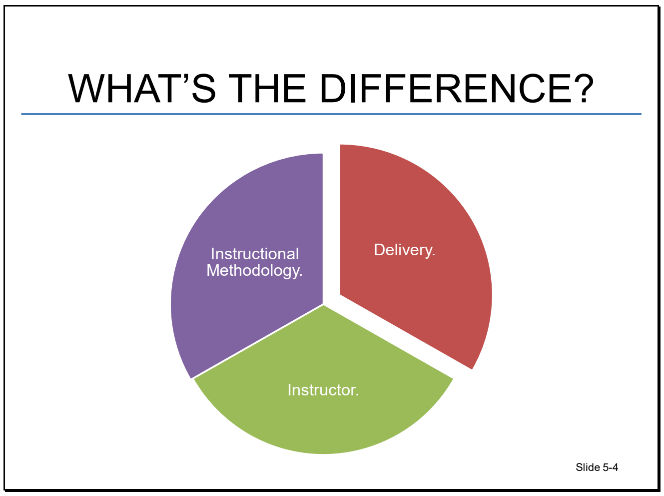
ADDIE

Analysis	• What is the desired level of performance? • What is the actual level of performance?
Design	• What should the training look like? • How will it be evaluated?
Develop	• Content, job aids, tools, and assessments.
Implement	• Put the plan into action.
Evaluate	• Did it work? • Share the results.

Slide 5-3

A. Design: Create objectives, select methods of delivery, instruction, and assessment, to meet the current performance gap.

"Design encompasses the act of making intentional, reflective choices about how an activity, course, or curriculum will lead to desired outcomes for student learning. These intentional choices form a learning environment in which students follow an instructional path as they build disciplinary understanding and knowledge." (https://cndls.georgetown.edu/support/course-design/)



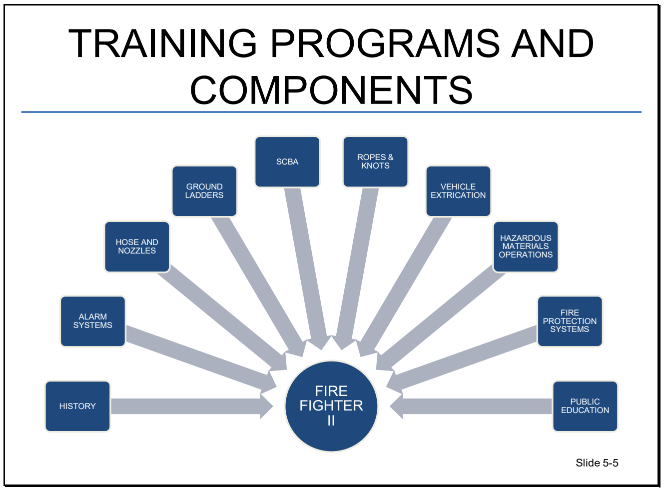
B. Delivery vs Instructor vs Instructional Methodology: In the Fire/EMS profession, a designer of training may also be the instructor, so it is important to note that the terms "delivery", "instructor", and "instructional methodology" when used to describe methodology are technically different:

1. Delivery. The methods chosen when designing a course to teach the student. Various delivery methods are assessed and chosen to maximize student interaction and learning.

2. Instructor. The personal characteristics an instructor employs in the classroom to keep students motivated, engaged, and to facilitate learning.

3. Instructional. Instructional methodology technically pertains to the delivery methods selected during the design process. However, it may be used interchangeably with instructor methods.

II. TRAINING PROGRAM VERSUS TRAINING COMPONENT



A. A training program is composed of groups of training components that are designed to meet overarching training goals, competencies, or certifications.

B. Training programs may be a single course or multiple courses. For example, firefighter I is designed to be certified as a firefighter or may be part of a group of courses, such as firefighter I, hazardous materials operations, and medical first responder which are combined as the required minimum level of training needed to qualify as a firefighter.

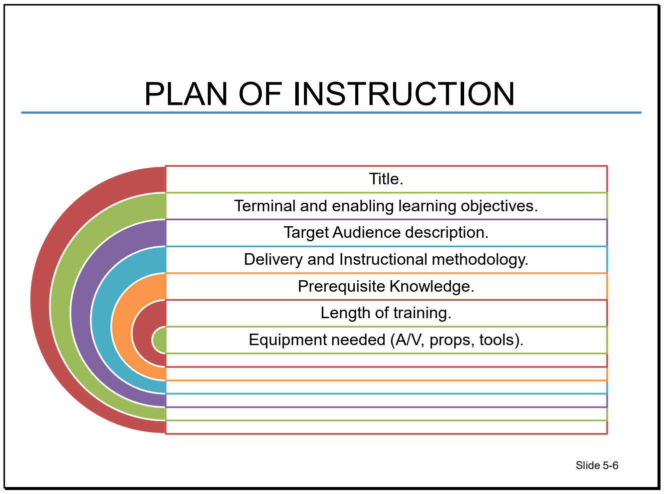
C. Training components are sections of training (units, modules, etc.) that focus on specific topic areas and are a part of an overall training program.

D. For example, firefighter I is a training program. It is composed of various training components which include introduction to fire service, fire service history, personal protective equipment, hose and nozzles, ground ladders, ropes and knots, etc.

III. PLAN OF INSTRUCTION IN DESIGN

A. A plan of instruction is a lesson and logistics plan used to support a training component (unit, module, etc.). The plan of instruction (POI) contains terminal and enabling learning objectives, instructional notes, class set up instructions, type of class (practical lab, classroom instruction, etc.), length, equipment needed (A/V, props, tools), classroom logistics, safety equipment and emergency procedures, evaluation methodology, and any other information needed to instruct.

B. It is not uncommon for instructors to develop their own POIs when they teach. Unfortunately, they tend to be limited in scope since they are designed for individual use. A formal plan of instruction should be complete to the point that it can be handed off to another instructor and they should be able to teach from it without problems.



C. Example components:

1. Title: Plan of Instruction.

   a. Instructional Methodology: Lecture, Lab, Practical Application.

   b. Prerequisite Knowledge and Assignments (student/target audience).

   c. Prerequisite Knowledge (instructor).

   d. Reference materials.

   e. Standard.

2. Introduction.

   a. Motivation Statement (why is this important).

   b. Key concepts and topics.

   c. Terminal and Enabling Objectives.

   d. Linkage/context: how does this topic fit with the program goal?

   e. Evaluation methodology.

   f. Base knowledge check.

3. Content.

   a. Topics and activities with sufficient detail.

b. Review.

c. Evaluation.

d. Support materials.

D. Checklist of some POI evaluation considerations:

1. Does the assessment approach and difficulty match the behaviors, conditions and standards stated in the objectives? Yes/No

2. Are the instructions on how to complete the assessment clear? Yes/No

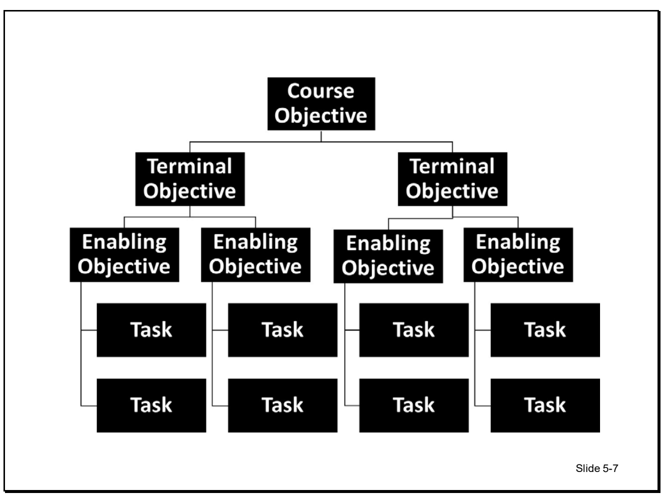
3. Do content experts agree that the tasks being measured are similar to those performed on the job? Yes/No

4. Do content experts agree with the proposed measures and passing criterion levels?

5. Have all SMEs involved in creating the assessment been trained? Yes/No

6. Have the assessment methods been tried out before? Yes/No

IV. TERMINAL AND ENABLING OBJECTIVES



A. General points about objectives.

1. Accomplishment measured any time during and/or after training provided.

2. Written to identify what student's will be able to do after training.

3. Objectives help students reach goals by breaking skills and knowledge into achievable tasks.

4. Objectives aligned with outcomes ensure training content stays focused on the necessary outcomes.

B. Definition of a terminal objective.

1. A terminal objective describes the end result of training in terms of student performance at the end of a block of training.

2. A terminal objective describes the end result of training in terms of student performance at the end of a block of training. For any course, it is possible to have many terminal objectives that, when taken together, add up to the ultimate ability to accomplish the goal.

C. Definition of an enabling objective.

An enabling objective is simply one of the "building blocks" of a terminal objective. That is, an Enabling objective is one of the subordinate steps or skills needed to be able to accomplish the terminal objective.

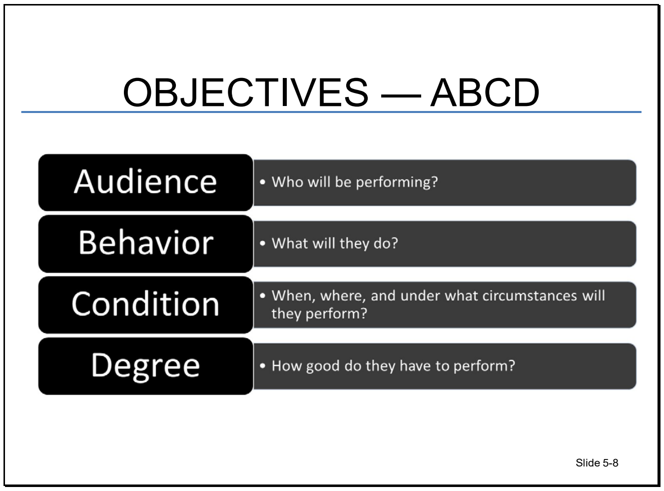
D. Importance of written objectives:

1. Basis for selection of materials, content or methods.

2. Determine if desired learning will/has occurred.

3. Everyone knows what is expected.

4. Ensure the desired outcomes are met. Mager states that, "When clearly defined objectives are lacking, there is no sound basis for the selection or designing of instructional materials, content or methods." If you don't know where you're going, it is difficult to select a suitable means for getting there.



E. Creating Objectives.

1. Audience.

Who (which learner) will perform the action? As clearly as possible, identify the target audience. Within the same course, the police chief and fire chief might have different objectives.

2. Behavior.

What measurable task does the learner have to perform? Use action (or observable) verbs to describe the capability, skills, etc. Since most objectives are written for tasks, re-read the task statement. If in doubt, go back to the taxonomy level to determine the appropriate verb.

3. Condition(s).

Under what circumstances does the learner have to perform the action? Usually conditions involve things like locations, tools, equipment and supplies. However, you need to avoid what Mager describes as false givens, such as “Given three days of instruction,” or “Given adequate practice.” A condition is something the learner must have or be denied when demonstrating achievement of the objective.

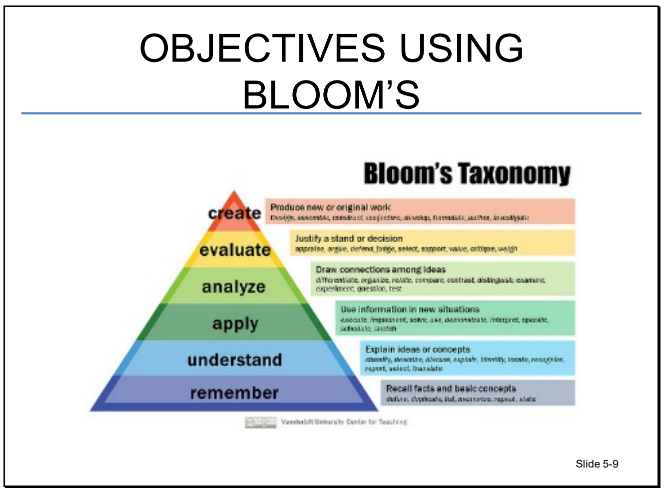
4. Degree.

What is the degree of accuracy for completing the task? How will the instructors and students know that performance is satisfactory? Another way to look at this is to describe the standard for successful task completion. Defining the degree of accuracy or standard for complicated tasks, like writing a Plan of Instruction (POI), is almost impossible within an objective, unless you can state, “According to the evaluation checklist.” This means you need to develop an evaluation checklist.

5. Example of ABCD objective components.

   a. "Given a scenario involving 10 patients, the emergency medical technician (EMT) shall correctly triage all patients using the START method, in under 10 minutes."

   b. In this example, the component has not been written as ABCD, but as CABD. That's fine. As long as all the components are included, you should write your objective sentences for greatest clarity.



F. Writing objectives using Bloom's.

The authors of the revised taxonomy suggest a multi-layered answer to this question, to which the author of this teaching guide has added some clarifying points:

1. Objectives (learning goals) are important to establish in a pedagogical interchange so that teachers and students alike understand the purpose of that interchange.

2. Teachers can benefit from using frameworks to organize objectives.

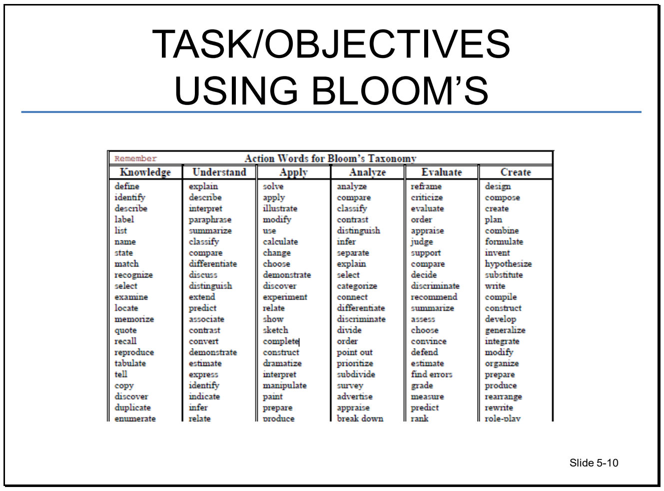
3. Organizing objectives helps to clarify objectives for themselves and for students.

4. Having an organized set of objectives helps teachers to:

   a. "Plan and deliver appropriate instruction."

   b. "Design valid assessment tasks and strategies."

   c. "Ensure that instruction and assessment are aligned with the objectives."



Remember — Action Words for Bloom's Taxonomy

Knowledge	Understand	Apply	Analyze	Evaluate	Create
define	explain	solve	analyze	reframe	design
identify	describe	apply	compare	criticize	compose
describe	interpret	illustrate	classify	evaluate	create
label	paraphrase	modify	contrast	order	plan
list	summarize	use	distinguish	appraise	combine
name	classify	calculate	infer	judge	formulate
state	compare	change	separate	support	invent
match	differentiate	choose	explain	compare	hypothesize
recognize	discuss	demonstrate	select	decide	substitute
select	distinguish	discover	categorize	discriminate	write
examine	extend	experiment	connect	recommend	compile
locate	predict	relate	differentiate	summarize	construct
memorize	associate	show	discriminate	assess	develop
quote	contrast	sketch	divide	choose	generalize
recall	convert	complete	order	convince	integrate
reproduce	demonstrate	construct	point out	defend	modify
tabulate	estimate	dramatize	prioritize	estimate	organize
tell	express	interpret	subdivide	find errors	prepare
copy	identify	manipulate	survey	grade	produce
discover	indicate	paint	advertise	measure	rearrange
duplicate	infer	prepare	appraise	predict	rewrite
enumerate	relate	produce	break down	rank	role-play

G. Task and Objectives using Bloom's.

1. Objectives should align with the appropriate learning taxonomy for the task or attitude.

   a. The complexity of the task or sub-task will help to determine if it is a terminal or enabling objective.

   b. If the task is to "complete an accurate patient assessment," the difficulty of that task needs to be considered. Simply "completing" something is Level 3 on the Bloom's Taxonomy.

   c. However, if the complexity of completing the form requires analysis, it should be reworded to reflect the Level 5 cognitive evaluation process needed.

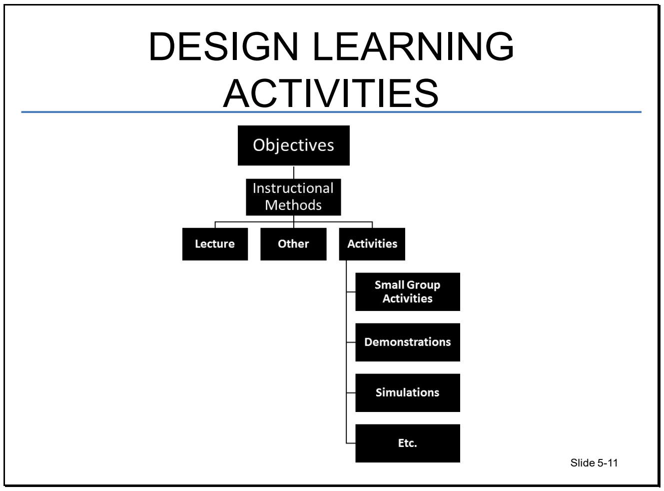
2. The objective should be measureable.

   a. The student will be able to list all the steps for completing the patient assessment," may measure a lower level action task/subtask that is measureable in an exam or activity.

   b. The learner will be able to perform a focus (head to toe) survey for a trauma patient, in accordance with state medical protocols." A simple test question cannot assess if the learner is able to perform the test and make the determinations required. A scenario-based exam question or an exercise may measure the ability to achieve the objective.

   c. The taxonomy of an objective will help focus training content and help identify the appropriate method of instruction and evaluation during the design process.

V. DELIVERY METHODS AND ACTIVITIES



DELIVERY METHODS

Knowledge Type	Traditional Delivery	Gaming
Declarative	Presentation Reference Job aid Quiz	Trivia game Card game Board game Puzzle game
Conceptual	Matching activities Presentation Visual modes Role play Knowledge checks	Matching game Card game Board game Puzzle game
Procedural	Observation Practice Teaching others On-the-Job Training (OJT)	Sequence games Matching games Building games
Decision-making	Role play Observations Simulations	Team games Simulations Branching Problem-solving
Communication/Soft skills	Role play with feedback Models	Team games Simulations Role playing

Slide 5-12

Where do these methods fit?

A. Class discussion.

B. Group discussion.

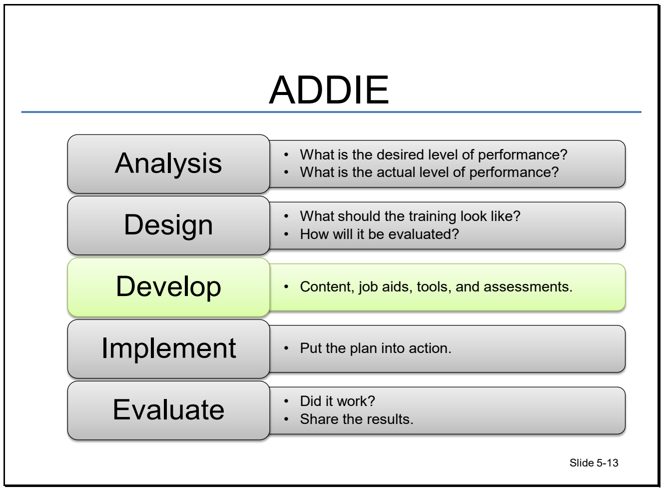
C. Video.

D. Group activity.

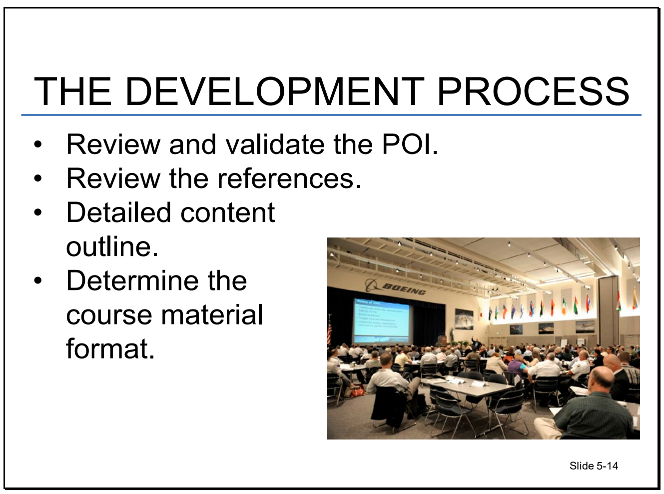
E. Demonstration.

F. Coaching.

VI. PLAN OF INSTRUCTION IN DEVELOPMENT



A. Development: Develop, or incorporate existing, training components into a course to meet the training objectives.



B. Steps in the development process.

1. Step 1: Review/Validate the POI.

Review the POI and the instructional strategy for each objective.

2. Step 2: Review the references.

Before starting to write the outline, review the references and identify when the references will be used in the training. Make sure to do the following:

a. Survey the literature and SMEs to determine instructional materials that are available.

b. Consider adapting available materials.

c. Determine if new materials need to be developed. Use the POI as a guide.

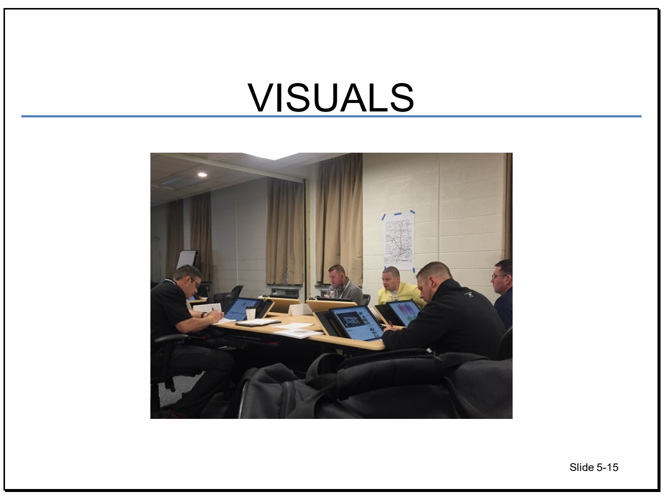
3. Step 3: Detailed content outline.

Begin outlining the structure of your course.

4. Step 4: Determine the course materials format.

After you complete the outline, determine the format and presentation procedure for each objective. This step is completed directly after the outline. Plan an effective general format and presentation pattern. Plan the actual script and visuals for the instructional strategy.

VII. VISUALS



A. Most people use photos and graphics to visually enhance a document. This is only part of the instructional message.

B. Information design is the consideration, selection and integration of each of the previously mentioned elements to enhance presentation and communication with your intended audience. Layout, fonts and white space are as important as other visuals for communicating technical information.

C. Visuals enhance layout and content once design and strategy formats have been determined. The following are important considerations for selecting visuals for your project:

1. Detail — Images need to be large enough that the objective can be clearly seen, but no larger than necessary to support the message.

2. Relevance — Arbitrary visuals intended to add aesthetics to a document but hold no relation to the content can distract from the effectiveness of the message. A technical document on changing a light bulb should clearly have images of light bulbs, but as appealing as butterflies may be, they have no relation to the objectives.

3. Simplification — "A picture is worth a thousand words." If you can achieve this with your selected image you have chosen well.

VIII. JOB AIDS

JOB AIDS

- Checklists.
- Procedures.
- Decision guides.
- Forms.
- Worksheets.
- References.
- Videos.

Slide 5-16

JOB AID FORMAT

Guidelines for Choosing the Appropriate Job Aid Format

Description	Checklist	Procedures List	Decision Guide	Form/ Worksheet	Reference Sources	Video/ Podcast
Involves a list of items to review or evaluate a program, process or function	X					X
Requires that steps be performed sequentially		X				X
Requires decision-making			X			X
Different actions are required based on the alternative selected			X			
Involves a conceptual flow of information, processes or procedures			X			X
Requires quick action, but is not complex — visuals would be preferred			X			
Involves numerous steps, each of which is dependent on a prior action		X	X			X
A list of references, resource materials, videos or compilation of selected information or tools					X	
Requires that specific information be collected				X		X
Need to provide guidance for documenting responses or procedures				X		X

Slide 5-17

Guidelines for Choosing the Appropriate Job Aid Format						
Description	**Checklist**	**Procedures List**	**Decision Guide**	**Form/ Worksheet**	**Reference Sources**	**Video/ Podcast**
Involves a list of items to review or evaluate a program, process, or function	X					X
Requires that steps be performed sequentially		X				X
Requires decision making			X			X
Different actions are required based on the alternative selected			X			
Involves a conceptual flow of information, processes, or procedures			X			X
Requires quick action, but is not complex — visuals would be preferred			X			
Involves numerous steps, each of which is dependent on a prior action		X	X			X
A list of references, resource materials, videos, or compilation of selected information or tools					X	
Requires that specific information be collected				X		X
Need to provide guidance for documenting responses or procedures				X		X

A. Job aid components.

To ensure that all the critical information is presented in a productive manner, an effective job aid should contain the following components:

1. Clearly defined tasks, functions, processes.
2. A purpose or outcome.
3. A sketch, drawing or outline.

B. Tips for effective job aids.

Here are four tips to keep in mind to aid in the development of effective job aids. The last tip, protecting your job aid, may become very important during a crisis, especially in the field. If a job aid is destroyed by elements, such as wind or rain, you will likely not have the opportunity to re-create it any time soon.

1. Keep instructions clear, specific and simple (avoid jargon).

2. To highlight important information, incorporate shading, boldface, underlining and italics.

3. Add simple illustrations and graphics to enhance effectiveness.

4. Depending on the environment, develop the means to protect the job aid from wear and tear.

C. Once you have developed a job aid, you can use the checklist to evaluate its functionality and effectiveness.

Checklist for Evaluating Job Aids

Person submitting Job Aid(s): ________________________ Date: _____________

General

1.	Is the type of Job Aid (flowchart, decision matrix, spreadsheet, etc.) the most appropriate for the function being performed?	Yes	No	NA
2.	Is the Job Aid as simple as possible and clear to read/understand?	Yes	No	NA
3.	Is the Job Aid easy to reproduce?	Yes	No	NA
4.	Are the instructions for using the Job Aid easily understood?	Yes	No	NA
5.	Is the Job Aid available in the most user-desired format (print or electronic file)?	Yes	No	NA
6.	If the Job Aid is not self-explanatory, is adequate training being planned to explain how to use the Job Aid?	Yes	No	NA

Flowcharts

1.	Does the flowchart use standard flowcharting conventions?	Yes	No	NA
2.	If the flowchart is more than one page, is (are) the connecting point(s) clear?	Yes	No	NA
3.	Does the flowchart contain sufficient description to make it self-explanatory?	Yes	No	NA
4.	Are the instructions for using the Job Aid easily understood?	Yes	No	NA
5.	Does the flowchart cover all possible options that the user will encounter or otherwise address the unusual situation?	Yes	No	NA

Decision Matrices

1.	Does the matrix list all the desired options?	Yes	No	NA
2.	Does the matrix use appropriately sized text for quick and easy reading?	Yes	No	NA
3.	Does the matrix use shading, color, italics, etc., to make it easier to read and use?	Yes	No	NA
4.	If the matrix links to other matrices, are the links clear and easy to understand?	Yes	No	NA

Computer Spreadsheets

1.	Is the spreadsheet in an electronic format that is available to most users?	Yes	No	NA
2.	Are appropriate cells "protected" so the user doesn't accidentally erase or alter information which should not change?	Yes	No	NA
3.	Does the spreadsheet use appropriately sized text for quick and easy reading?	Yes	No	NA
4.	Does the spreadsheet use shading, color, italics, etc., to make it easier to read and use?	Yes	No	NA
5.	If the spreadsheet links to other spreadsheets, are the links clear and easy to understand?	Yes	No	NA

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ACTIVITY 5.1

Job Aids

Purpose

Given a scenario with a performance deficit, determine, describe and justify the use of an appropriate job aid which will improve performance.

Directions

1. Read the scenario description on the following worksheet.

2. Select and justify the most appropriate job aid for addressing the performance deficiency.

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ACTIVITY 5.1 (cont'd)

Worksheet

Scenario Description	Job Aid Selected	Justification
Monday and Friday are inventory days for all Emergency Medical Services (EMS) equipment, with reorder for station and apparatus cache to be complete then and inventory to be delivered to your station. Inventory is often missed and supplies run short, requiring requests for supplies.		
Routine checks and maintenance of saws are not being completed according to Standard Operating Guideline (SOG), resulting in higher rates of repair and the saws not being serviceable when needed.		
A new radio system is being installed. The system will provide multiple channels and talk groups, shifting from one channel for emergency operations to over 100 possible channels. There is confusion about which channel to use and when.		
On rare occasions, your station deploys a boat for water rescue operations. Personnel are frequently rotated in and out of the station and there needs to be a way for those who are assigned temporarily to be able to learn about the process.		

Scenario Description	Job Aid Selected	Justification
The promotional exam for Lieutenant is being offered in six months. There are over fifty references used, but no one has a complete list.		
During crisis operations, the Department Operation Center is able to deploy additional phone lines for use. Deployment requires specific action to activate the numbers and the last time it was attempted, it did not go well.		
Your station is home to a back-up server room. Recently, the power went out and a manual switch was not activated. As a result, the system shifted to battery power, but never shifted back when power was restored. Five hours later, critical computer systems began to go down.		
While your department sits in a storm prone area, it has been over 10 years since the station was threatened by a hurricane. Several weeks ago, a storm threatened and the station was unable to successfully prepare for the storm, including leaving shutters off of some windows, failing to fill the generators, and failing to request task force assistance from utilities and public works. This resulted in damage to the station and an inability to conduct a windshield survey in a timely manner following the storm.		

IX. TECHNOLOGY

TECHNOLOGY AND ITS IMPACT ON LEARNING

Slide 5-19

A. Technology may reduce formal training time and allow for self-directed learning. However, integrating technology needs to be well developed and designed to improve engagement and retention rather than to amaze.

B. The use of technology that provides "eye candy," or is not tied to learning objectives and assessment, fails to meet the training requirements.

C. During Hurricane Katrina, the information needed to make critical decisions before landfall were buried in a PowerPoint presentation.

D. The use of colors, movement, pictures and embedded video that offered no additional information served to draw attention from the critical information.

E. Consequently, decision-makers left the briefing unaware of the need for critical decisions. For more information, visit https://www.gpo.gov/fdsys/pkg/CRPT-109srpt322/pdf/CRPT-109srpt322.pdf.

THE WEB

- 1.0.
- 2.0.
- 3.0.

Slide 5-20

F. The Web.

1. Web 1.0 training essentially took noncomputer based training courses, such as workbooks, digitalized them, and placed them on the web.

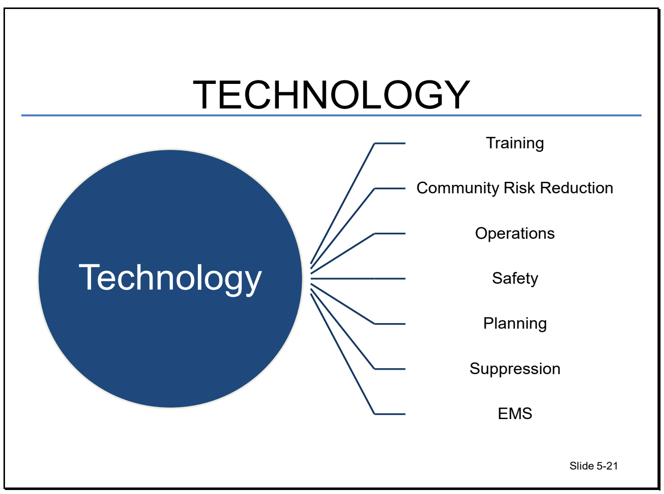
   For example, converting a workbook to PDF for students to read.

2. Web 2.0 training used web-based tools in place of traditional course delivery.

   Examples include the use of podcasts and webinars, where the course is still delivered in a traditional format, but using technology as a delivery mechanism.

3. Web 3.0 training incorporates technology based programs in the design and delivery process. Courses are designed using education and noneducation tools to engage and inform students.

   For example, using Pinterest or Thinglink to demonstrate concepts, or using decision based scenario software for tactical simulations.



G. Change happens and it is continuing to happen.

1. In 1965, Gordon Moore (co-founder of Intel), projected that the integrated circuit's ability would double every other year, based on his observations. He later revised that to doubling every year. This was erroneously labeled as "Moore's Law." Since then, as integrated circuits gave way to chips, that trajectory has continued. This has allowed smaller, faster, and cheaper technology. In fact, around 2020, computing should achieve capabilities that fall somewhere between that of an insect and mouse's brain. Unfortunately, around the same time, Moore's Law will cease without the introduction of a new technology. For the first time in our lifetimes, the speed and ability of processors will reach its maximum capacity. In the future, the limiting factor for processor speed and capability will be tied to the ability to diffuse heat, and technology will be as small as it can get.

2. As we move forward, the need for services for an aging population will also impact the service and its training needs. How we manage change will lead to our success or failure. Think of how long it takes for community expectations to change.

   a. 1876: Telephone invented.

   b. 1891: Direct dial telephone (no need for the operator to connect lines).

   c. 1967: The FCC recommends 9-1-1 as the emergency number for the U.S.

   d. 1968: The first 9-1-1 call is made; Nome, Alaska, adopts 9-1-1.

   e. 1969: Governor Reagan signs legislation requiring 9-1-1 to be the emergency number in the state of California.

   f. 1986: 9-1-1 is the emergency number for all of California.

   g. 2017: 96 percent of the U.S. has 9-1-1 as the emergency number of choice.

3. It took 77 years between the introduction of the rotary phone and the introduction of a universal emergency telephone number.

   a. 1992: First text message sent.

   b. 1995: Average user sends .4 texts/per month.

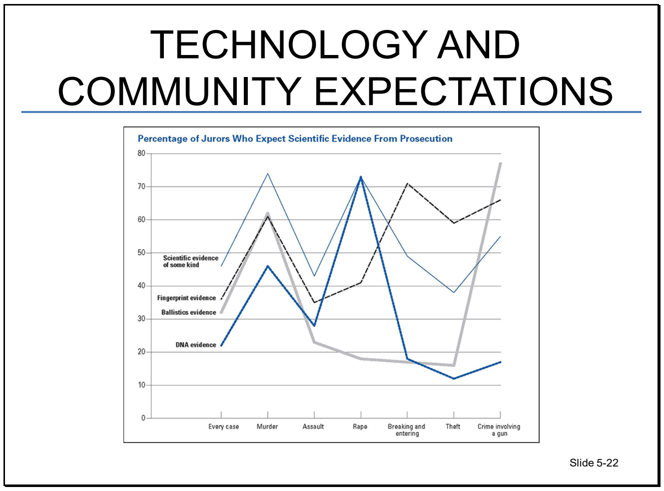
   c. 1999: Texts can cross networks.

   d. 2000: Average user sends 35 texts/per month.

   e. 2007: Texts exceed number of phone calls.

   f. 2014: Text to 9-1-1 mandated by federal law.

4. It took 22 years from the first text message to the requirement that 9-1-1 centers accept text messages.


TECHNOLOGY AND COMMUNITY EXPECTATIONS
Percentage of Jurors Who Expect Scientific Evidence From Prosecution
80
70
60
50
40
30
20
10
0
Scientific evidence of some kind
Fingerprint evidence
Ballistics evidence
DNA evidence
Every case
Murder
Assault
Rape
Breaking and entering
Theft
Crime involving a gun
Slide 5-22

ACTIVITY 5.2

Instructional Technology

Purpose

Describe the generations of technology used in training, programs that may be used and how to correctly apply them.

Directions

1. In table groups, describe the characteristics of an assigned web generation and how it has been used in training, then identify and research current technologies that can be used to address the assigned facet of training design based on the desired learning domain objective.

2. Develop a five- to 10-minute presentation on the topics assigned.

   a. Table 1: Web 1.0 and 2.0; technologies for remembering and creating.

   b. Table 2: Web 3.0; technologies for understanding and evaluating.

   c. Table 3: Web 4.0; technologies for applying and creating.

   d. Table 4: Web 5.0; technologies for analyzing and evaluating.

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IX. TECHNOLOGY (cont'd)

Technology in Classroom (only applicable ones) [Magana and Marzano]

Element	Sub-Element	Discussion	Technology Tool
Provide clear learning goals and scales (rubrics)	Clearly articulate learning goals	Pre-course assignments, expectations, and questions. Ensure and remind students that training tasks are tied to goal	Website Discussion board Blendspace Blog Wiki
	Create scales or rubrics	Involve students in rubric	Polling software discussion board
Track student progress	Formative assessments	Focuses attention on critical information and content	Polling software
	Student generated assessments	Students build content using multi-media tools	Screen capture software Audio software Video software Presentation software[1]
Identifying critical information	Identify critical input experiences	Only 2 – 3 critical input experiences per learning goal. Alert students that they are about to receive critical information Insert pause time for students to reflect and digest critical elements	Presentation software Polling software
Organizing students to interact with new knowledge	Grouping	Divide students into groups for group activity, discussion, project	Grouping software Digital note programs Picture or word based collaboration tools Flowchart software
	Job cards	Assign roles to team members	N/A

[1] Presentation software may include video and audio capture software, digital drawing and animation programs, screencasting software, etc.

Slide 5-24

Are you using web-based training within your organization?

Slide 5-25

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ACTIVITY 5.3

Novel Technology

Purpose

Predict the impact of a novel technology and its impact on training and operations.

Directions

In your groups, research the technology identified, and develop a five-minute presentation on its use and the training needed to integrate the technology into emergency services. Be prepared to discuss the opportunities and threats associated with implementation.

1. Table 1: Firefighting robots: http://wildfiretoday.com/2015/12/11/firefighting-robots/. http://www.sfpe.org/?page=fpe_et_ issue_100.

2. Table 2: Firefighting drones: https://www.firerescue1.com/fire-products/communications/articles/1867819-5-drone-technologies-for-firefighting/.

3. Table 3: Electrical wave blasting technology: http://www.popsci.com/science/article/2011-03/future-firefighters-could-fight-fire-blasts-flame-bending-electricity.

4. Table 4: Integrated sensing technology: https://www.firerescue1.com/fire-products/vehicle-equipment/fire-cameras-video/articles/ 1866961-5-techs-for-the-wired-firefighter-of-the-future/.

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X. GUIDES AND MANUALS

A. The terms “guides” and “manuals” are often used interchangeably. Both may be formatted similarly; however, manuals tend to provide greater depth of knowledge, especially in the facilitation/instructional guidance and notes sections.

B. According to the National Highway Institute (U. S. Department of Transportation), “The instructor guide is designed to be a comprehensive tool for facilitating a course. Thoroughly reviewing this documents, as well as all related course materials and resources, will prepare you to teach the course.” Refer to the NHI instructor guide in the required reading for Unit 5.

C. Formats vary by jurisdiction, but common elements include:

a. Title of block of instruction.

b. Time needed to complete the lesson, including breaks.

c. Preparation needed to be completed before the lesson begins.

d. Resources needed to complete the lesson or to support the content.

e. Slides used during the lesson.

f. Key messages to provide guidance between slides, activities, or lessons. It is not a script and is not intended to be read to the class.

g. Facilitation/Instructional Guidance. This may include questions to be asked. The intent is to ensure that the course is taught as intended.

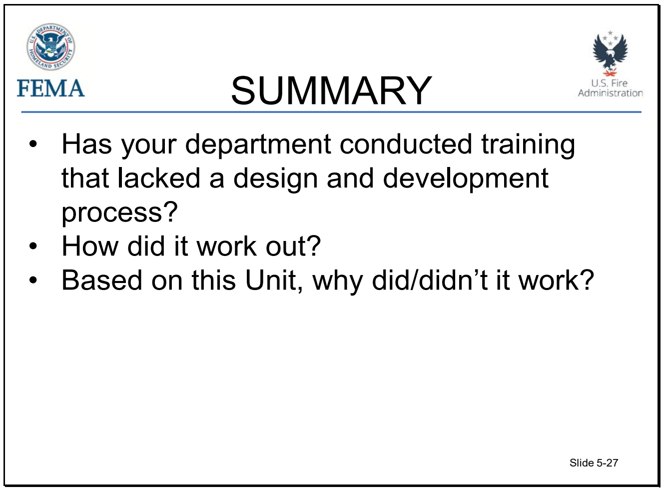
h. Background is included when relevant to provide supplemental information to the slide content. It is designed to serve as a reminder of content that should be shared with the class and may include some additional content and references such as reports, case studies, dates, etc.

i. Notes listing specific references, such as codes and standards.

j. Course text links describing how the block of training links to the program.

k. Evaluation method describing how participants will demonstrate mastery of the content.

XI. SUMMARY


FEMA
SUMMARY
U.S. Fire Administration
• Has your department conducted training that lacked a design and development process?
• How did it work out?
• Based on this Unit, why did/didn't it work?
Slide 5-27

UNIT 6: IMPLEMENTATION AND EVALUATION

TERMINAL OBJECTIVE

The students will be able to:

6.1 Create a successful training implementation and evaluation plan that aligns with performance, organization, and community outcomes.

ENABLING OBJECTIVES

The students will be able to:

6.1 Select effective instructional styles and methods.

6.2 Effectively market training.

6.3 Develop an evaluation plan.

6.4 Collect and analyze evaluation feedback and data for training improvement.

6.5 Effectively summarize and report findings to stakeholders.

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FEMA

U.S. Fire Administration

UNIT 6: IMPLEMENTATION AND EVALUATION

Slide 6-1

OBJECTIVES

TO: Create a successful training implementation and evaluation plan that aligns with performance, organization, and community outcomes.

EO: Select effective instructional styles and methods.
EO: Effectively market training.
EO: Develop an evaluation plan.
EO: Collect and analyze evaluation feedback and data for training improvement.
EO: Effectively summarize and report findings to stakeholders.

Slide 6-2

I. IMPLEMENTATION

ADDIE

Analysis	• What is the desired level of performance? • What is the actual level of performance?
Design	• What should the training look like? • How will it be evaluated?
Develop	• Content, job aids, tools, and assessments.
Implement	• Put the plan into action.
Evaluate	• Did it work? • Share the results.

Slide 6-3

After training materials are designed and developed, the next step is the implementation, planning and delivery of training.

II. PRESENTERS

A. Select presenters.

Instructor selection criterial will vary; however, the instructor should possess the technical skills, subject matter expertise, instructional and presentation abilities, and any other skill, knowledge, or attitude that is required to successfully engage and inform students.

B. Prepare presenters.

Once a training professional has selected presenters for training, those presenters must be fully prepared to assume the training role.

C. Training professionals are responsible for the following activities when preparing presenters for training:

1. Introduce the presenters to the training content.

2. Require presenters to rehearse the training presentation.

3. Provide feedback on the presenters' practice presentations.

4. Answer questions and addressing concerns.

5. Motivate the presenters.

ACTIVITY 6.1

Presenter Qualifications

Purpose

Determine presenter qualifications and needs for the given scenario.

Directions

1. Working in table groups, describe the desired characteristics and instructor needs for the given scenario.

2. Be prepared to defend the decision.

Scenarios

Group 1

Due to changing economics, your department is considering altering the deployment model within your jurisdiction. The department is looking to close a number of stations and deploy most responders in teams of two in small pick-up trucks to roam about the jurisdiction, similar to police department deployment. The trucks would be equipped with medical gear and FIT V units. The department would still deploy several engines and ladder trucks, staffed with an operator, who would operate out of fixed stations. When a fire occurs, the quick response units would respond and rapidly deploy the FIT V, with fire apparatus responding to assist. Your team is tasked with developing training for the introduction of this new technology into the department (https://www.youtube.com/watch?v=3L0OwSVk-xk).

Group 2

Your jurisdiction has embraced community risk reduction, and the chief is looking to implement a program where each station will initiate and deliver community risk-reduction activities in their response area. In order to achieve this goal, you will need to develop training for personnel on data analysis, expanding on the community risk-reduction training received in initial firefighter training, and providing training on specific topics, such as home safety surveys, car seat installation, and public speaking.

Group 3

Your jurisdiction is looking to use drone technology to enhance emergency response operations. Several drone models are being purchased, including one that can carry 500 gallons of water for use in the wildfire environment, one with multiple cameras (including thermal imaging), and one that can deploy with 100 gallons of class A, B, C extinguishing agent. You are tasked with developing a training program for introducing this new technology (https://sites.google.com/a/ncsu.edu/firefighting-drone-challenge/).

Group 4

Your jurisdiction is deploying two types of EMS drones. One type of drone will deploy with AEDs and quickly respond to reports of cardiac arrest. The other will be able to carry medical supplies to support special events and large scale incidents. The second drone is pre-loaded for mass shooting incidents, equipped with tourniquets, hemostatic dressings, and chest seals, but other packages can be quickly loaded and deployed. You have been tasked with developing a training plan for introducing the new technology (https://www.ems1.com/ems-products/aeds/articles/26491048-Ambulance-drone-development-for-AED-delivery-continues/).

III. TRAINING SITES

A. Selecting training sites is a time consuming process, however, as training sites tend to exist for many years, improper selection can be a problem.

B. Some considerations for training site selection include:

1. What are the current needs?

2. What will needs be 10 to 20 years into the future?

3. Where does ground water drain to?

4. Is the area exceptionally wet or dry?

5. Can the area be developed?

6. Is the facility able to address technology upgrades?

7. Is the facility expandable?

8. What is the community master plan for the area?

9. Is water and sewer adequate?

10. Are there environmental, historical, or cultural issues attached to the site?

11. Can the road infrastructure handle the traffic load?

12. Are there adequate support services (food, medical care, etc.)?

13. Is the community willing to have a training site nearby?

14. Are there partnership opportunities? If so, what are their needs?

IV. LOGISTICS

A. Definition: the detailed coordination of a complex operation involving many people, facilities, or supplies.

B. Training logistics encompasses everything needed to support actual instruction. This may include technology support, such as computers, projectors, and internet capabilities; facilities, apparatus, props, and tools. Logistical needs should be identified during the design and development process. In addition to the initial identification of logistical needs, consider repair and replacement cycles and procedures, and alternate procedures if there is a failure, and associated needs.

V. MARKETING

A. Gaining support and active involvement in training is crucial to the success of the training endeavor; therefore, marketing as the communication tool is crucial to success. Be sure to consider the reasons that adults engage in training when formulating a marketing plan to increase participation and buy-in.

B. Marketing during the Implementation phase is particularly important. When piloting training, marketing efforts should be geared to participants who will help evaluate the quality of the training.

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ACTIVITY 6.2

Marketing Training

Purpose

Identify marketing methods to increase participation in a training course.

Directions

1. In table groups, review the training course and develop a plan to market the plan to reach minimum enrollment. At the conclusion, report out your actions.

2. Tables 1 and 4: Your department was formed 27 years ago. As a result, the entire leadership cadre, from lieutenant to chief, will be retiring over the next seven years. Currently, there are no firefighters or drivers attending training to promote to the lieutenant position. Similarly, no lieutenants are taking action to promote to the captain level and none of the captains are seeking the training and education required to promote to the chief officer level. Conversations have revealed a lack of interest in taking classes, including variations on the comment, “Why should I take the classes; you have to promote someone.” Your goal is to offer the following courses over the next several years:

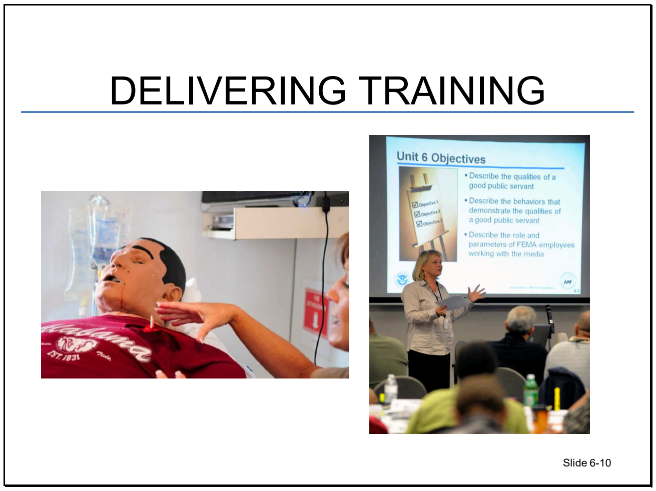
Course	Required For	Time
Fire Department Supervision	Lieutenant	40 hrs
Fire Department Administration I	Lieutenant	40 hrs
Tactics and Strategies	Lieutenant	40 hrs
Instructor I	Lieutenant	40 hrs
Hazardous Materials Chemistry	Lieutenant	40 hrs
Building Construction	Lieutenant	40 hrs
Life Safety Educator I	Lieutenant	40 hrs
Fire Department Administration II	Captain	60 hrs
Fire Inspector I	Captain	60 hrs
Life Safety Educator II	Captain	60 hrs
Hazardous Materials IC	Captain	60 hrs
Fire Instructor II	Captain	60 hrs
Cause and Origin	Captain	60 hrs
Government Finances	Chief Officer	90 hrs
Public Speaking	Chief Officer	90 hrs
Government I	Chief Officer	90 hrs
Leadership and Management	Chief Officer	90 hrs

3. Select one of the block areas (lieutenant, captain or chief officer) and develop a plan.

4. Tables 2 and 3: Your department is seeking to expand into the community paramedicine market. The EMS chief would like to offer a variety of services, including have a mobile urgent clinic staffed by a paramedic and nurse practitioner; urgent clinics located in several fire stations staffed with paramedics and nurse practitioners; a community outreach unit with a paramedic and EMT who will work with the local hospital to visit patients with chronic issues, such as diabetes, in order to reduce re-admissions and improve compliance; and a community risk-reduction program where first response units visit homes in their first due areas to conduct home safety surveys, smoke detector installations, and provide recommendations to reduce emergency incidents. In order to implement the program, you will need to train members on:

Topic	Audience
Basic X-ray technician	Paramedics
Basic lab skills (e.g., rapid strep)	Paramedics
Clinical documentation	Paramedics
Home health skills	Paramedics
Home safety surveys	All operational personnel
Smoke detector installation	All operational personnel
CO detector installation	All operational personnel
Related home safety skills (recognition of abuse, human smuggling, poison prevention, pool safety, etc.)	All operational personnel

VI. DELIVERY



A. The delivery of content is when most trainers end involvement. While delivering training is a critical step in the process, it is not the end point. Ensure an evaluation or assessment process is built into the delivery (design and implementation) of new or revised training. This is part of a formative evaluation process.

B. Assessments or evaluation in the Implementation phase monitor student learning and provides feedback that can be used by designers and instructors to improve the training content and/or delivery.

C. To monitor student learning, design may begin with an evaluation or assessment whereby skills are demonstrated (individually or as part of a complex scenario) so that the training is created and delivered with a focus on areas of weakness.

   1. Then an assessment or evaluation is implemented during delivery to gage the efficacy of the training delivery on the areas of weakness.

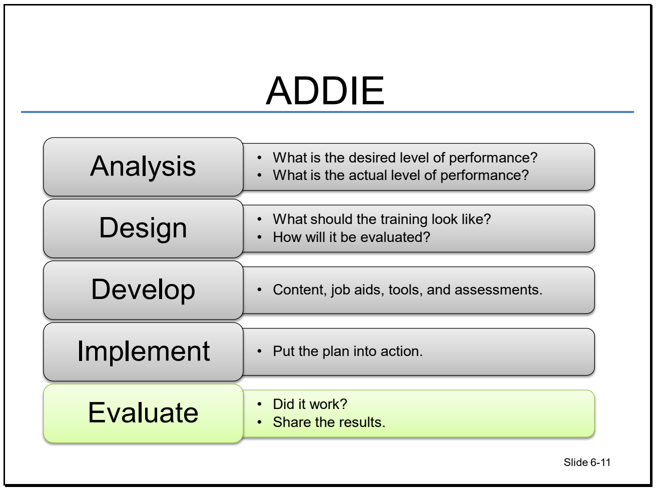
   2. For example, conduct evolutions using NFPA 1401 (Standard for Training for Emergency Scene Operations) and evaluate them. Based on those exercises, deliver training to address weaknesses in performance. During delivery, how will weaknesses be improved and mastery of material be captured? How will competency be demonstrated?

D. Delivery methods are assessed during the implementation phase to include the efficacy of:

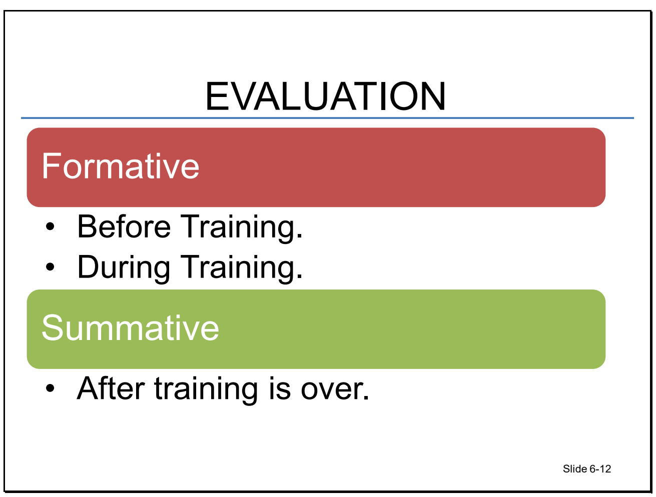
   Lecture, discussion, on-line (mediated, and non-mediated), self-directed, web-quests, simulations, case studies, games, activities, role-play, on-the-job training, coaching, and mentoring. It is possible that the content of the training is valid, but the delivery needs improvement to heighten student engagement and retention.

(Coaching is used to improve performance in a specific area and usually refers to knowledge and skills. Mentoring tends to refer to soft skills and attitudes. Counseling is used for policy violations that need to be addressed through discipline.)

VII. EVALUATION MODELS



A. As previously stated, evaluation is interwoven throughout the ADDIE process. The Evaluation phase is comprehensive and should capture all assessments along the way, culminating with an overall evaluation of training efficacy.



B. Formative and Summative Evaluation.

1. Formative evaluation is captured throughout the implementation and delivery of training.

a. It helps students identify their own strengths and weaknesses, but does not grade the students.

b. It allows students to address problems immediately, during the training experience.

c. Can be used to immediately address content and/or delivery deficiencies.

d. Examples: knowledge checks, activities, group project, etc.

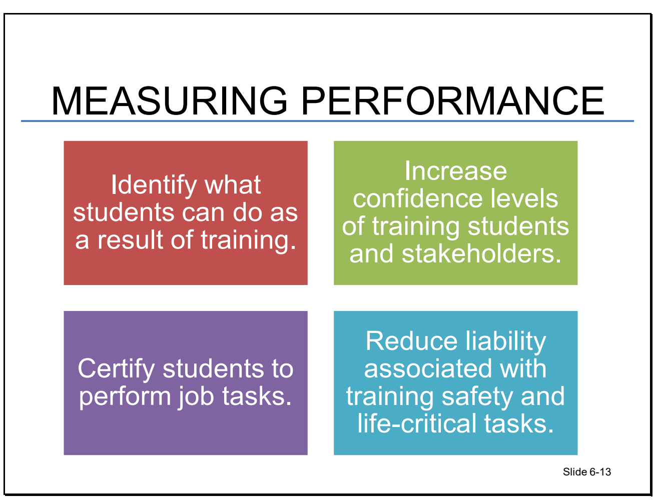
2. Summative evaluation is used to assess student learning at the end of training. (At the end of units, blocks of concepts, when training has concluded, etc.)

a. Compares student learning to a standard or benchmark.

b. Should be used to evaluate and validate the quality of the training content and delivery.

c. Examples: graded exams, final projects, papers, etc.

3. Both methods should be used to evaluate all content and components of training. For example: test questions. If students are performing badly on a test, it is important to go back and review the test questions to determine if they are clear and accurate, and do they align with the content being taught. Note: ensure a broad view of performance is used while doing this evaluation. If one class does poorly on an exam, but others do not, that it may less likely be the materials themselves — so that may be an instructor issue (not covering material) or a class culture issue (the wrong target audience, or poor motivation).



C. Performance.

1. Assessing performance helps to determine if students can apply the knowledge and skills when performing job tasks. The more critical the job task, the more important it is to assess performance rather than just knowledge.

2. The benefit of measuring performance helps ensure that learning translates to a real world environment.

3. Conducting performance evaluations helps you to:

   a. Identify what students can do as a result of training.

   b. Increase confidence levels of training students and stakeholders.

   c. Certify students to perform job tasks.

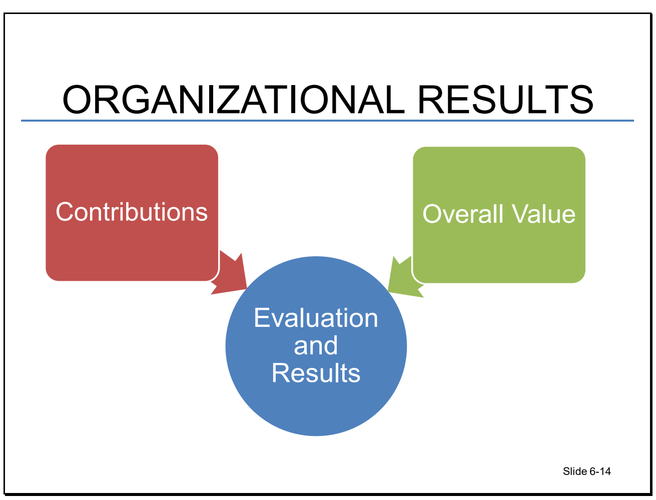
   d. Reduce liability associated with training safety and life-critical tasks.

4. Measure performance (or skill application) when one or more of the following conditions exist:

   a. Critical skills are being taught that must be performed at a minimum standard or criterion on the job.

   b. Professional standards or licensing requires certain performance levels for certification (e.g., pilot licenses, EMS certification, etc.).

   c. The attainment of the majority of course objectives can be best measured using performance measures.



D. Organizational results.

1. Measuring organizational results shifts the focus from assessing how the training experience has impacted the individual to considering if the investment in training was worthwhile to the entire organization.

2. Evaluations measuring organizational results:

   a. Identify the contributions that training has made to the organization.

   b. Establish the overall value of those contributions both monetary and non-monetary.

3. There has been a growing demand for accountability of training costs within the public and private sectors. Decision-makers realize how large the investment — both monetary and nonmonetary — in training and development has become, and they need to be assured of the value of training. They want to know which training programs work and at what cost. (Cost is also a consideration in the Assessment phase! Compare estimate with reality at the end.)

4. Specifically, measuring organizational results enables one to:

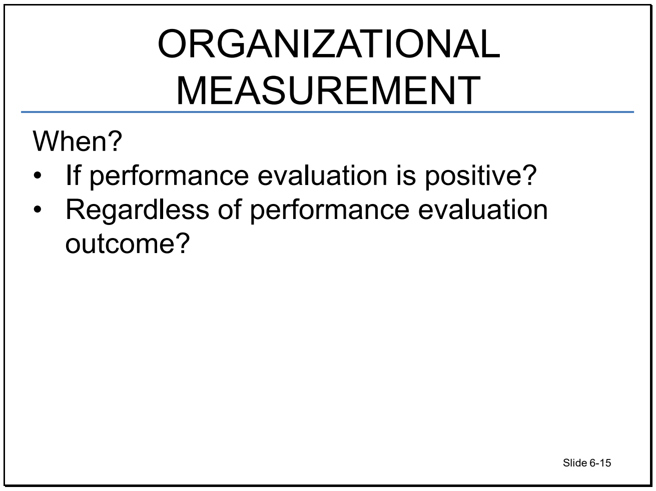
   a. Identify what the organization gained.

   b. Determine the cost of the gain.

   c. Establish how much value the organization placed on the results.

   d. Provide a justification for continuing training.

   e. Without this information, you are unable to establish a business case for your training.



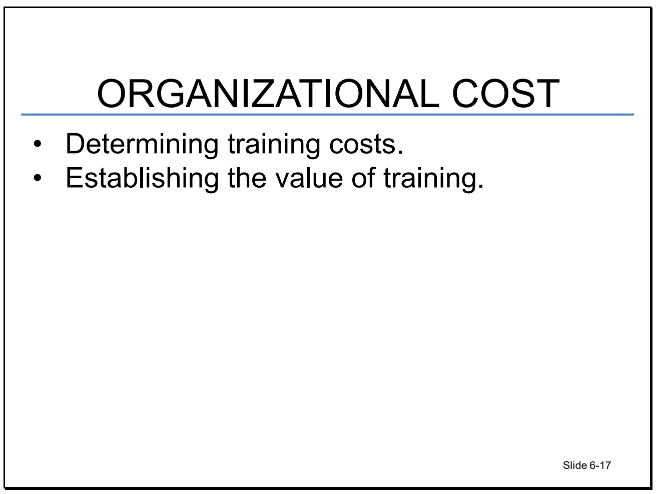
5. When to measure organizational results?

   a. Some argue that the measuring of organizational results should occur after the performance evaluation finds positive changes on the job through training transfer. The logic being that there is no point in measuring organizational results until certain that training transferred to the workplace.

   b. However, organizational results may be captured regardless of successful performance transfer. If performance transfer is deficient, there may be a negative impact on the perception of training, on the culture, or budget of an organization. These organizational impacts should be assessed to mitigate any damage by identifying the cause for failure.

   c. Considerations and/or measurements for evaluating organization results:

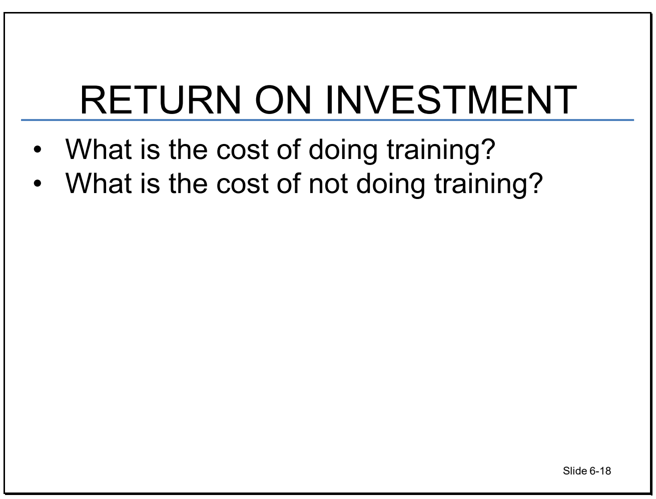
- The organization's strategic or performance plan training goals.
- Compare success/failure to other organizational resources invested in training.
- If a critical organizational problem or safety-related issue is being addressed by training.
- Does upper management supports this type of evaluation.



6. Process for measuring organizational results involves:

   a. Determining training costs.

   b. Establishing the value of training.



E. Return on investment.

1. Return on Investment (ROI) is the ratio of benefit derived from an investment (in this case, training) and the cost of the investment. ROI is predicted early in the analysis phase as part of determining the impact of a problem on the organization or community. As part of the design process, solutions are identified for effectiveness and cost. If the cost of a project does not meet the cost of the problem, it is considered to be "cost negative". This does not always mean that there is no benefit, as there may be some benefits that are difficult or impossible to quantify in monetary terms. For example, improved employee morale may correspond to fewer citizen complaints, but there is no economic benefit.

2. When determining costs, all costs must be captured, including allocated costs such as time for on-duty training and employee benefits. Allocated (sunk) costs are needed to accurately calculate the true costs. While the costs exist whether applied to the training project or not, they are costs that can not be applied to other projects (a student in training for an hour, is an hour away from performing job duties or other functions).

3. While ROI is estimated in the analysis process, it is validated in the evaluation process (typically, after a set time period such as a year). This allows the full impact of the training to be realized.

4. Return on investment (ROI) is critical to support training and department operations.

5. While training may be a small portion of an agency's budget, the ROI should be equal to, or greater than, the investment made.

   a. Training costs include staff time, training props, facilities, media, printing, development time, transportation, and apparatus costs.

   b. Training may also impact the budget by its effect on non-monetary criteria, such as retention and morale.

   c. Training costs may be tied to civil and criminal liability.

   d. Training will be examined during Line of Duty Deaths (LODDs) and as part of the investigation following injuries at the fire scene.

6. Training also comes with costs and risks, including the possibility of injury during training, incidents going to/from training, depreciation of facilities and equipment, and the possibility of incidents occurring when units are out of service during training.

ACTIVITY 6.3

Return on Investment

Purpose

Determine the factors that will impact Return on Investment for a proposed program which would identify:

- If implementation was successful based on measurable components.
- Data for analysis in the evaluation process.
- Data to utilize in findings.

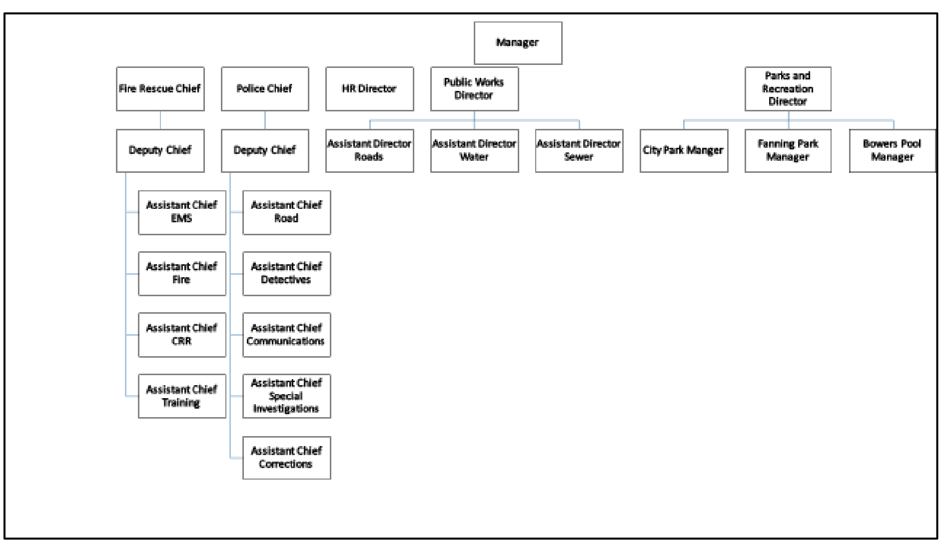
Directions

In your table groups, review the following scenario and identify factors that will impact determining the ROI for a proposed program from the training perspective. Scribe your answers on easel pads.

Scenario

Your department has completed a hazard analysis and determined that the response community should be trained to the confined space operations level following 29 CFR 1910.146 and National Fire Protection Association (NFPA) Standard 1670, *Standard on Operations and Training for Technical Search and Rescue Incidents*. There are 48 members who will be trained, with 20 members in the DROP (four retiring per year for the next five years). Your training facility does not have a confined space prop.

Community Organization Chart



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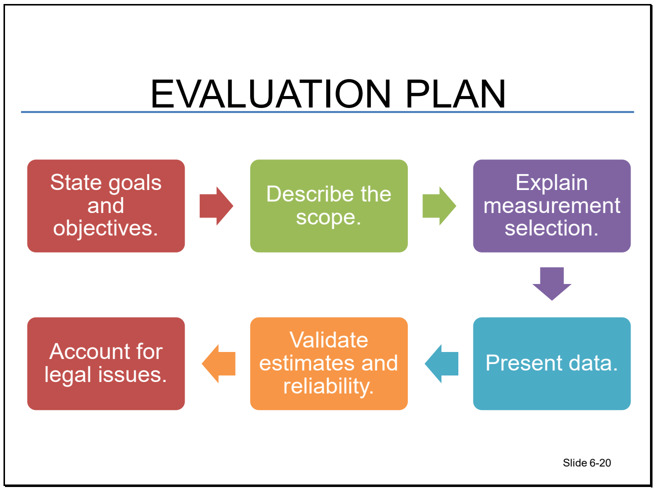
VIII. EVALUATION PLAN AND REPORT



A. Steps for developing the evaluation plan.

An evaluation plan can be formal or informal, just ensure that the key decision-makers agree with the plan before proceeding. The following steps outline the planning process:

1. Step 1: State the goals and objectives.

2. Step 2: Describe the scope.

3. Step 3: Explain measurement selection.

4. Step 4: Collate, analyze, and present data.

5. Step 5: Validate previous estimates and training success.

6. Step 6: Account for any potential legal issues.

The Evaluation Plan: Basic Components

1. **Purpose:** Write a brief paragraph that identifies the purpose of the evaluation.

2. **Goals and Objectives:** List the goals and objectives of the evaluation.

3. **Audience:** Identify who will receive and use the evaluation data.

4. **Reporting:** Describe how the evaluation results will be disseminated.

5. **Issues:** Identify the factors that will influence how you will design and conduct the evaluation.

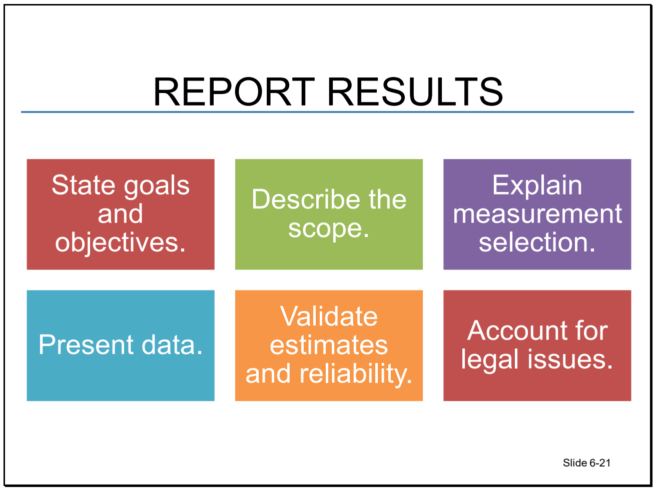
6. **Cost and Budget:** State what type of costs you will incur and who will fund those costs. Also identify who will be responsible for assisting in the evaluation.

7. **Types of Information Needed and Data Sources:** Identify the types of information that you need in order to meet your evaluation goals and objectives and the sources from which you will collect the data.

8. **Methods for Gathering the Information:** Identify how you plan to collect the information, and if possible, state why you chose a particular method.

9. **Evaluation Design:** Identify your plan for implementing the evaluation.

10. **Analysis Plans:** Describe how you plan to analyze the data and identify additional resources that you may require to help in the analysis.



B. Reporting evaluation results.

1. After successful completion of the evaluation plan, the next step is to share the information with stakeholders.

2. Examples of formats to share information:

   a. Written Report.

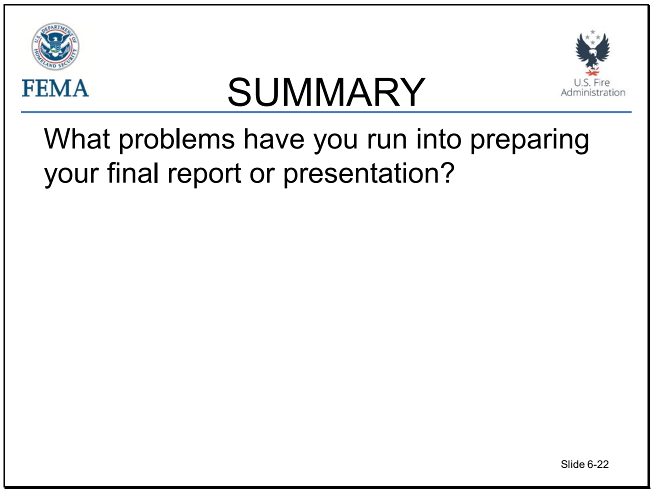
   b. Presentation.

   c. Discussion.

   d. Public announcement.

3. For the final project students will prepare an evaluation report and presentation.

IX. SUMMARY


FEMA
SUMMARY
U.S. Fire Administration
What problems have you run into preparing your final report or presentation?
Slide 6-22

UNIT 7: FINAL PROJECT

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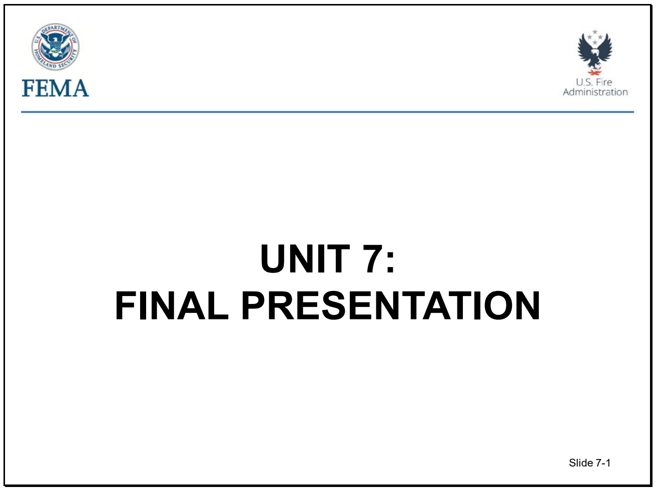
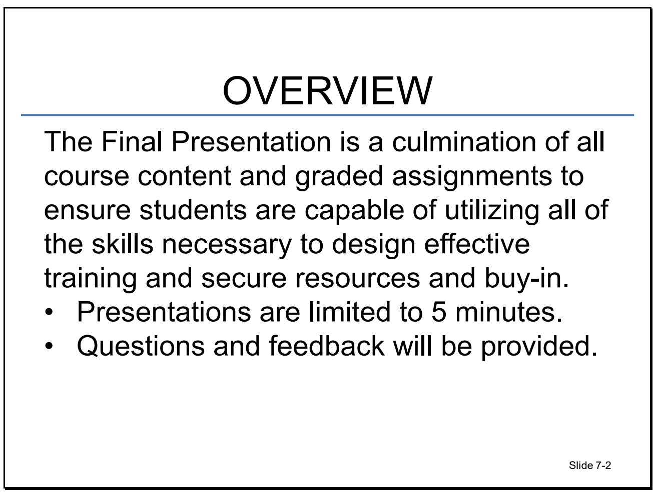


I. OVERVIEW

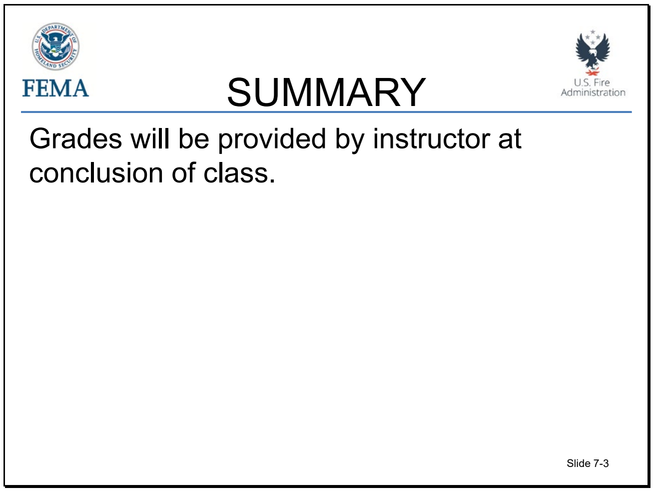


The Final Presentation is a culmination of all course content and graded assignments to ensure students are capable of utilizing all of the skills necessary to design effective training and secure resources and buy-in.

II. PEER REVIEW

III. PRESENTATIONS

IV. SUMMARY


FEMA
SUMMARY
U.S. Fire Administration
Grades will be provided by instructor at conclusion of class.
Slide 7-3