Welcome Back!

Day 5
The Last Day!

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Today's Assignment

- Chapter 11 – Evaluation, Assessment, and Reflection
- Group Project
- Final Exam

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Marsha P. Giesler

Fire and Life Safety Educator
Principles and Practices
SECOND EDITION

Chapter 11:
Evaluation, Assessment, and Reflection
Pages 216 - 232

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Evaluation is Important!

Don't be afraid. . .

4

Objectives (1 of 3)

- Define *evaluation, assessment*, and *reflection*. (pp. 217, 230)
- Explain the importance of making evaluation an integral part of programs and education initiatives. (p. 217)
- Determine what should be evaluated. (pp. 218–219)

5

Objectives (2 of 3)

- Summarize the types of evaluation and their applications for fire and life safety education programs. (p. 221)
- List methods of evaluation and the advantages of their implementation. (pp. 222–225)
- Discuss methods of interpreting and presenting evaluation results. (pp. 225–228)

6

Objectives (3 of 3)

- Apply an evaluation instrument to measure lesson outcomes (NFPA 4.5.1). (pp. 222–227)
- Score an evaluation instrument based on the scoring procedures and grading scale (NFPA 4.5.2). (pp. 227–228)
- Discuss the purpose and value of reflection for fire and life safety educators. (p. 230)

7

Evaluation has a formula!

Follow clear directions. . .

8

Introduction

- Educators must remember that:
  - Some form of evaluation should be included in all program delivery, no matter how informal it may be
  - Evaluation is not an afterthought; rather, its form and implementation are part of initial planning and linked to the entire education process
  - Results may not be immediately evident
- It is the responsibility of educators to make evaluation and reporting results a priority.

9

Introduction (cont'd.)

- 1990: TriData Corporation
  - *Proving Public Fire Education Works*
    - Data and case studies supporting public education evaluation
    - Evaluation methodologies
    - Still a valid study
- United States Fire Administration
  - National Emergency Training Center program
    - *Demonstrating Your Fire Prevention Program's Worth*

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10

~Myth vs. Fact~

- **Myth**: An assessment should only be given at the end of a program or presentation.
- **Fact**: Assessments should be given at the beginning of a program to find out what the students are bringing to the class and again at the end to see if all of the objectives have been met.
- **Myth**: The same type of assessments should be used for every program and presentation.
- **Fact**: The assessment should be tailored for the specific program and audience that you present to, in order to gain the most useful information.
- **Myth**: Results from an assessment aren't always important, especially if they are negative.
- **Fact**: ALL results are important and should be used to improve a program or celebrate successes.

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11

What Is Evaluation?

- **Evaluation**: A systematic assessment of information to provide useful feedback about program results, policies, technology, people, needs, activities, and materials and the extent to which a program caused those results.
- Difference between *evaluation* and *assessment*:
  - Projects or programs are evaluated.
  - Student or learner progress and behaviors are assessed.

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12

What is Evaluation?

- Systematic assessment of information
  - Provides useful feedback
    - Program results, policies, and technology
    - People, needs, activities, and materials
  - Involves:
    - Collecting data
    - Making judgments about information validity
    - Making decisions about how to act on results

13

Why Is Evaluation Necessary for Safety Education?

- Allows to find out if the goals and objectives of a new or existing curriculum have been met
- Helps judge the worth of future programs
- Helps modify and make improvements to the existing curriculum
- Provides useful feedback to all stakeholders
- Aids in decision-making processes or policy formation
- Avoids resources being wasted

14

What Needs to be Evaluated and Assessed?

- Variables
  - Outreach
  - Efficacy
  - Knowledge and competence
  - Performance of individual, entire program, or both
  - Behavior change
  - Adoption

15

What Needs to be Evaluated and Assessed? (cont'd.)

– Maintenance
– Resources
– Program implementation
– Attitudes and reactions
– Recidivism
  • Relapse to previous condition
  • i.e. Youth Firesetting

16

What Needs to Be Evaluated and Assessed?

• In general: the structure, the process, the outcomes
• Many variables within these elements
• **Outreach**
  – Outreach information provides the percentage and risk characteristics of persons who receive or are affected by a policy or program.
  – Educators must constantly be aware of the demographics of their high-risk communities and work to discover the best ways to reach them.

17

Outreach

• Outreach information provides the percentage and risk characteristics of persons who receive or are affected by a policy or program.
• Educators must constantly be aware of the demographics of their high-risk communities and work to discover the best ways to reach them.

18

Efficacy

- Efficacy is seeking to find out if the program outcomes were effective.
- Pay close attention to both positive and negative program outcomes.
  - Sometimes the most valuable lessons are learned from the negative outcomes.
- Measurements of efficacy should include information about many areas of the program.
  - Examples: behavioral outcomes, satisfaction levels, decreased call volume, and allocation of resources

19

Knowledge and Competence

- Knowledge gain is measured through the administration of pre- and post-tests.
- **Competence** is the assessment of what the student should be able to do at an expected level of achievement.
- This poses difficulties and should be done in the most realistic yet practical setting.

20

Performance of the Individual, Program, or Both

- Most evaluations assess:
  - The aggregate achievements of all individuals
  - The actual processes of a curriculum implementation
  - The perception of learners and faculty

21

Behavior Change

- Much more difficult to quantify and interpret than knowledge gain.
- Surveys and interviews are useful tools for achieving this measurement.
- One way to test the students' ability to apply lessons to real-life situations is to provide realistic scenarios and ask them to answer all the "What ifs" of the situation.

22

Adoption

- It is important to discern whether the participants will adopt the new skills as part of their lives.
- Examine the barriers for nonparticipating segments of a population.
- These results are usually assessed by direct observation, interviews, or surveys.

23

Maintenance

- Educators need to be vigilant in tracking program results over time to ensure that adoption of the messages and behaviors becomes relatively stable and enduring.
- This is one of the most difficult dimensions to track and assess.

24

Resources

- Could range from simple items like handouts to smoke alarms or child car seats for the entire community.
- Competent programs now ensure the resources are fulfilling their intended use.
- Follow-up surveys are conducted to ensure the continuation of its use.

25

Program Implementation

- During initial planning, make a checklist of the parameters to be followed, like curriculum, action plans, protocols, as well as any logistical issues that might have been encountered.
- This checklist is then completed upon completion of the program.
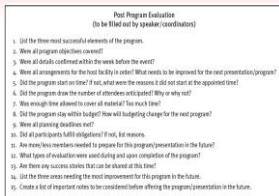
Courtesy of Marsha Giesler.

Figure 11-2 – Page 220

26

Attitudes and Reactions

- Although not quantifiable by hard numbers, these results are relatively easy to obtain through surveys, questionnaires, and interviews.
- The dimensions addressed include personal reactions to the learning experience, its relevance, their level of comfort in terms of venue, style of learning, methods of instruction, and timing of the program.

27

Recidivism

- **Recidivism**: "A tendency to relapse into a previous condition or mode of behavior; *especially*: relapse into criminal behavior."
  – For example, youth firesetting behaviors
- Programs with high recidivism rates need to look closely at other external factors, work with program partners, and revisit program procedures to improve these results in the future.

28

Types of Evaluation

- Important terms
  - **Epidemiology**
  - **Formal evaluation**
  - **Informal evaluation**
  - SWOT analysis
  - Formative evaluation
  - Needs assessment
  - **Baseline**
  - Evaluability assessment
  - Structured conceptualization
  - Implementation evaluation

29

Types of Evaluation (cont'd.)

- **Process evaluation**
- **Formative evaluation**
- Summative evaluation
- **Impact evaluation**
- **Outcome evaluation**
- Cost effectiveness
- Secondary analysis
- Meta-analysis
- **Quantitative evaluation**
- **Qualitative evaluation (p. 223 – What I Learned Today)**

30

Types of Evaluation

- Evaluation should be impartial, objective, diverse, easy to understand, accurate, practical, sensitive, considerate of time, methodical, and accessible.
  – Health officials and city planners use demographic information to study trends and plan programs and interventions based on the science of **epidemiology**.

31

Formal Evaluation

- **Formal evaluation** is a systematic, consistent, methodical, accurate, and valid form of evaluation.
- This form of evaluation
  – Should be practical, cost-effective, and ethical
  – Make appropriate use of resources and time
  – Demonstrate compatibility with the political climate and socioeconomic and cultural needs

32

Informal Evaluation

- **Informal evaluation** is less structured than a formal evaluation but still provides vital information for both formative and summative evaluations.
  – Examples: observations, surveillance, perceptions, student feedback, self-appraisals, dialogues and discussions, anecdotal notes, and rubrics
- **SWOT analysis** examines an organization's internal *strengths* and *weaknesses* along with external *opportunities* and *threats*.

33

Formative Evaluation

- **Formative evaluation** focuses on a program at the beginning of development and while it is happening.
- Types:
  - **Needs assessment**
  - **Evaluability assessment**
  - **Structured conceptualization**

34

Process Evaluation

- **Process evaluation** investigates the process of delivering the program or technology, including alternative delivery procedures.
  - Both qualitative and quantitative monitory techniques and implementation assessment are appropriate methods.
- **Implementation evaluation** monitors the reliability and dependability of the program or technology delivery, for which tools like checklists and rubrics are useful.

35

Summative Evaluation

- **Summative evaluation** judges the performance and worth of a program at the *end* of the program activities.
- Examples:
  - **Impact evaluation**
  - **Outcome evaluation**
  - **Cost–benefit analysis (CBA)**
  - **Secondary analysis**
  - **Meta-analysis**

36

Quantitative Evaluation

- A **quantitative evaluation** produces hard numbers and facts.
- The data is very consistent, precise, and reliable.
- Examples: answers to true/false and multiple-choice test questions that can be scored with point values, census numbers, and community demographics

37

Qualitative Evaluation

- **Qualitative evaluation** includes information about people's experiences, perceptions, opinions, feelings, and knowledge.
  – Methods include open-ended interviews, observations, testimonials, and descriptions of activities.
- Qualitative evaluation tends to be more subjective.
  – Hence, it can be combined with quantitative evaluation for a more accurate picture of the worth of a program.

38

Methods of Evaluation (1 of 2)

- All methods must be reliable, consistent, objective, and practical.
- Some common and easily conducted methods:
  – Minute paper
  – Anecdotes and testimonials
  – Pre- and posttests

39

Name: _____

The Three Most Important Things:

1. _____
   _____
   _____

2. _____
   _____
   _____

3. _____
   _____
   _____

I Still Have a Question: _____
   _____
   _____
   _____

*Also available in electronic format on accompanying Online Companion. Visit www.delmarfire.cengage.com for FREE access.

40

Methods of Evaluation (2 of 2)

- Methods (cont'd):
  - Tests
  - Questionnaires
  - Surveys
  - Focus groups
  - Direct observation, skills tests, and inspections
  - Evaluations
  - Personal interviews
  - Telephone interviews

41

TABLE 13–1   Types of Test Questions and Applications

Type of Question	Examples of Questions	Use for Type of Question
Forced choice	True/false	Faster to score
	Matching	Good for recognition
	Multiple choice	Good for lower level cognition items (see Bloom's taxonomy)
Recall items	Short answer	Still easy to score
	Fill in the blanks	Students need to produce accurate information rather than identify an answer already in front of them
	Who, what, when, where	
	Identify and organize	
Interpretative	Explain why	Integration and analysis
	Compare and contrast	Higher level thinking skills
	Make inferences	Reveals an understanding of a concept rather than echoing facts
	Use knowledge	
	Decision making	
	Applied problem solving	
	Ordering steps	
Evaluative	Observation	Allows evaluation of the ability to execute skills properly under observation
	Demonstration	
	Psychomotor	Ability to correct inconsistencies and errors immediately
		Observe practical application

42

Interpreting and Reporting Results

- Evaluations
  - Must be interpreted correctly and accurately
- Considerations for interpreting results
  - Always start with evaluation goals
  - Quantitative information
    - Central tendencies: mean, median, mode
  - Qualitative information
  - External factors

43

Reporting Results

- Considerations
  - Report the problem, goals and objectives, procedures, anticipated and desired results
  - **Present scores as percentages**
  - Use per capita (i.e., average per person)
  - **Provide information to learners**
  - Level and scope depends on the audience
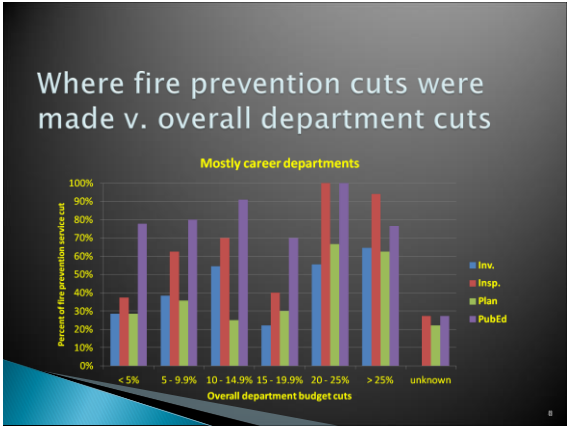 - Allow the report to be reviewed and discussed

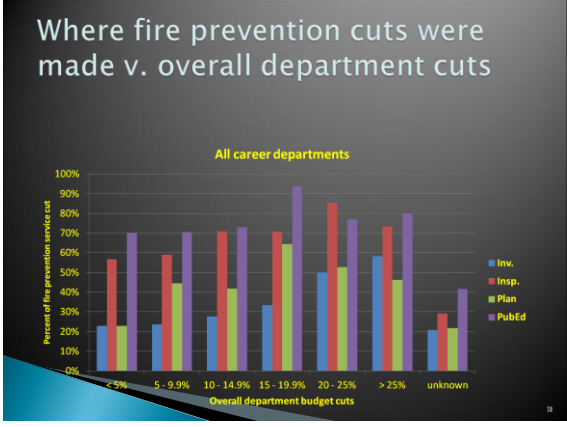44

Interpreting the Results

- Review the evaluation goals.
- Compile the quantitative information.
  - Compute the **central tendencies**, which are the **mean**, **median**, and **mode**.
- Organize and record qualitative information.
- Identify the external factors.

45

Mean, Median, Mode

- 20 question quiz – raw scores for 16 students:
- 20,20,19,19,18,18,17,17,16,15,15,15,14,13,11,6

Find the following:
Mean =
Median=
Mode=
Percentage for 17 correct =

46

Reporting the Results (1 of 2)

- Report the problem, goals and objectives, procedures, and anticipated and desired results.
- Scores should be presented as **percentages**.
- Use **per capita**, or average per person, when reporting information regarding costs, rate of occurrence in a given population, or comparisons among populations.
- Allow employees, stakeholders, and participants a chance to carefully review and discuss the report.
- Use simple, easily understood language when presenting program results.

47

Reporting the Results (2 of 2)

- When presenting orally or in print, use graphic representations to convey results
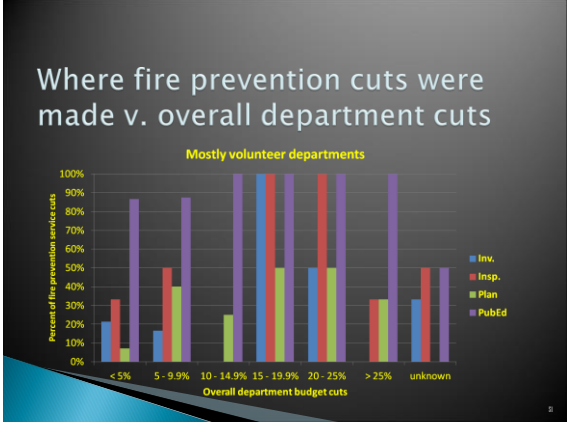 - Examples: pie charts, graphs, growth curves, comparisons

48

49

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51

Avoiding Pitfalls of Evaluation
(1 of 2)

- Before administering any form of evaluation, gain the proper permissions.
- Avoid asking double-barreled questions.
- Provide specific directions, especially for rating scales.
- Provide enough choices to capture all the possibilities from which the respondent might need to choose.
- Make necessary accommodations for participants that may have disabilities.

52

Avoiding Pitfalls of Evaluation
(2 of 2)

- Ensure that negative or accusatory overtones are eliminated.
- Be aware of the halo effect.
- Avoid interviewing only the successes.
- Do not ignore significant external or unexpected factors.
- Give proper feedback to participants and stakeholders
- Proof and test.
- Report results to all constituents in a timely manner.

53

Reflection

- A skill educators need to include as a practice to improve the quality of instruction.
- It forces an examination of some immeasurable elements that can positively or negatively contribute to the outcome of an event.
- The reflection process makes an important difference for future programming and coalition work.
- Answers bigger questions.

54

4/17/2019

Summary (1 of 3)

- Evaluation should be linked to every program and presentation an educator prepares, even if it is an informal survey or short questionnaire.
- Evaluation is not an afterthought.
  - Identifying what will be evaluated and the methods to be used should be decided at the beginning of the planning process.
- All stakeholders should be involved in the evaluation planning process. Everyone receives results.

55

Summary (2 of 3)

- It is important to include formative and summative evaluation during a program to avoid surprises at the conclusion.
  - Ongoing evaluation allows educators to make improvements along the way and avoid perpetuating mistakes.
- Fire and life safety evaluation needs to be valid, reliable, consistent, honest, and ethical.
  - It also needs to be user-friendly and sensitive to all demographics.
- Results are best reported through the use of accompanying visuals such as charts, graphs, and spreadsheets.

56

Summary (3 of 3)

- The study of evaluation and statistics can be challenging and complex.
  - Beginning educators should seek the assistance of other professionals who have experience with this work in their community.
- Fire and life safety educators should report their results with regularity to administrators, community organizations, and target populations so the value of this work is understood.

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