**Objectives**

- Explain why evaluation is important
- Identify & choose outcomes to evaluate
- Identify how to measure outcomes
- Discuss validity threats and experimental designs
- Discuss issues to consider in evaluation design to improve the ability to make inferences

**What is Training Evaluation?**

Assessing the effectiveness of the training program in terms of the benefits to the trainees and the company
- process of collecting outcomes to determine if the training program was effective
- from whom, what, when, and how information should be collected

**Importance of Evaluation**

- Why evaluate training?

**Purpose of Evaluation**

- Summative Evaluation: Collecting data to assess learning & other criteria
- Formative Evaluation: collecting data to assess how to make the program better

**What Should Be Evaluated?**

- Cognitive Learning
- Skills Learning
- Affect
- ‘Objective’ results
- ROI
How Do You Measure Outcomes?

- Cognitive Learning
- Skills
- Affect
- Results
- ROI

Criteria for Evaluation

- Criteria should be based on training objectives
  - all objectives should be evaluated
- Criteria should be relevant (uncontaminated, not deficient), reliable, practical, and they should discriminate
- Criteria should include reactions, learning (verbal cognitive, attitudes), results & ROI

Outcomes: Relevance, Contamination and Deficiency

- Criteria relevance
- Criterion contamination
- Criterion deficiency

Criterion deficiency, relevance, and contamination

Outcomes: Reliability, Discrimination and Practicality

- Reliability
- Discrimination
- Practicality

Evaluation Design: Purpose

- What is the objective of the training program?
- What do you want to accomplish with the evaluation?
Evaluation Design

• How do you determine whether the program has worked or not?
  - Measuring outcomes
  - Outcome constructs have changed as it was expected
  - The training program was responsible for the change, and not something else
  - The broader question is: How can you infer causality?

Causal Inferences

• Knowledge is most applicable when it can be expressed in terms of cause-and-effect relationships
  • One thing causes another if:
    – Temporal precedence
    – Covariation
    – No alternative explanations
  • Control

Experimental Designs

• Test whether one or more manipulated variables have an effect on specific criteria when controlling for other factors
• Treatment – manipulated variables
• Two features
  – A. Timing of treatment and measurement ensures temporal precedence
  – B. Attempt to eliminate alternative explanations
• If A and B, then covariation is interpreted as causality

Experimental Designs: Threats to Validity

• Threats to validity refer to a factor that will lead one to question either:
  – The believability of the study results (internal validity), or
  – The extent to which the evaluation results are generalizable to other groups of trainees and situations (external validity)

The Correlation Coefficient

• A relationship index
• What is r for a perfect positive relationship?
• How about a perfect negative relationship?
• No relationship?
• What is the interpretation of the squared correlation coefficient?

Correlation and Causality

• Ex. 1: Job satisfaction – job performance
• Ex. 2: Reading – IQ
Evaluation Design

• No one “best way”
• Some ways definitely better than others

Considerations for Evaluation Design

• Use pre-test & post-test
• Have a comparison group
• Random Assignment

Evaluation

• Why are the “best designs” not used?

Self-Talk Training Example

• Increase confidence of out of work managers
  – subject pool – managers who have given up job search
  – 1/2 given self-talk training and encouraged to continue job search
  – results: “self-talk training worked because the treatment group had a higher rate of reemployment”
  – implications: “self-talk is useful in increasing reemployment of the hard core unemployed”
• What is wrong with this?

Implications for Evaluation Design

• Explicitly consider evaluation at all levels
  – reactions, learning (verbal, skills, attitudes)
  – results, ROI
• Make links from objectives clear
• Specify types of outcome measures (include examples)
• Specify evaluation strategy

Next Time

• Traditional training methods
  – Noe Chapter 7
  – Broadwell and Dietrich (1996)