Assessment and Evaluation

OTED 750, Trends and Issues in Training: Modeling and Simulation

March 16, 2008 OTED 750, Lecture 8

Assessing Simulations

Must be able to establish the effectiveness of the investment.

Types of Evaluation

• Formative
  – Evaluating the form (the plan, the structure)

• Summative
  – Evaluating the change in behavior of learners as a result of the learning experience.
The Benefits of Evaluating

- Were the training goals met
- Make the training environment more supportive of learning
- Make the course more effective (revision)
- To identify and reduce workplace constraints that inhibit transfer

The Benefits of Evaluating (cont.)

- To prove that training pays
- To win management support for training
- To give trainers feedback so they can improve
- To justify the training budget
- To help make decisions on future training

Kirkpatrick's Four-Level Evaluation Model

- Reaction: Did they like it?
- Learning: Did they learn it?
- Behavior: Did they use it?
- Results: Did it provide ROI?
What you might evaluate before training

- What learners **expect** from the training
- What learners **need to learn** from the training
- What **workplace factors will help or hinder** desired performance
- What **outcomes are expected**?
  - Realistic? Desirable?

What is the **size of gap** between current behavior and expected behavior?
- What **resources exist** to facilitate learning?
- What are the **costs of training**?

What you might evaluate during training?

- Learners **comfortable**?
- Are learners **learning**?
- Is the training **content relevant** to learners (usable, understandable)?
- Is the training **enjoyable**?
- Will it **transfer to workplace**?
What you might evaluate after training?

- Did completers meet desired terminal behaviors?
- What factors are helping or hindering performance?
- What part of training proved most/least useful?

What changes in behavior can be seen?
- What is the dollar value of these changes?
- How does the value compare to the cost of training?

Later, the following needs to be assessed:

- Acquisition of new skills and knowledge
- Transfer of the competency to real life
Quality

• Content accuracy
  - Is the text proofread?
  - Drawings and legends accurate?

• Program accuracy
  - Objectives properly described?

• Content validity
  - Info and activities consistent with POs.
  - Tests assess POs?

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Quality

• Program Validity
  - Operation of program consistent with POs? Practice support the performances required?

• Program completion
  - Has program been used?

• Learner’s competence
  - Can they do the job?

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Media errors can affect control and execution

• Control
  - Interface, interactivity, navigation

• Static
  - Text, pictures, video, sound, animation

• Dynamic
  - Rules and procedures, model, a simulation providing invalid results

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The pilot session (in training)

- **NOT used** to find **programming bugs**!
- Used **to validate** the training package.

Methods of Evaluation

- observation, monitoring and logging
- experiments and benchmarking
- users’ opinion
- interpretation
- predictive

Evaluating your Simulations!

To give you an idea how YOU can evaluate your sim project...
EVALUATING DIAGNOSTIC SIMULATIONS

• Step 1: Determine the type and format of the simulation.
  – Is the exercise a client-management or mystery resolution simulation?
  – Is the simulation a closed-structure or an open-structure exercise? If closed-structure, is the exercise developed in booklet form or is it a computer-delivered simulation?

• Step 2: Analyze the nature and scope of the problem.
  – Is the problem non-trivial, yet not too complex for participants to interpret?
  – Is the problem an important priority for the role(s) selected for the simulation?
  – Has the developer provided a context that sets the stage for investigating the problem?

Closed-structure Diagnostic Simulations

• Step 3: Evaluate the opening scene.
  – Does the opening scene briefly describe the situation in concrete, yet neutral terms?
  – Does the opening scene describe the physical setting of the problem, the student’s role and any limitation in time? facilities or assistance available to the student? Also, does it include a minimum amount of extraneous information?
  – What type of media is used to present the opening scene? (Computer screen, videotape or videodisc, audio recording or other media?) Is the format credible?
• **Step 4: Evaluate the general sequence of the simulation.**
  – Does the exercise provide for multiple branching that incorporates data-gathering and management phases (i.e., the exercise is not linear)?
  – Does the participant choose which phases are to be explored at each stage of the investigation?
  – Does the exercise provide for exiting the participant for a fatal error?

• **Step 5: Evaluate the options and responses to the options.**
  – Do the sets of options include a range of choices (essential, facilitative, neutral, impeding and harmful)?
  – Are the options credible (i.e., incorrect options are not detectable on observation)?
  – Are the options designed so that later complications arise as a result of early strategies implemented by participants?
  – Are the responses to the options descriptive, but not evaluative?
  – Are the responses in appropriate format, language and/or style?

Open-Structure Diagnostic Simulations

• **Step 3: Review the background information and setting for the simulation.**
  – Is the background information sufficient, yet concise?
  – Is the setting for the simulation removed from the site of the problem to be investigated? If so, what means of communication with the problem site and mechanisms of data collection are to be used?
  – Is the setting credible, given the nature of the problem?
• Step 4: Analyze the roles.
  – Is each role essential to the investigation?
  – Is the responsibility of each role clearly delineated?
  – Does the simulation include one or more peripheral roles? If so, what is their function?

• Step 5: Review the projected sequence of events.
  – Is the exercise divided into specific time periods? If so, are they credible?
  – What staff-initiated events are provided in the simulation? Are they credible?
  – In what ways do the peripheral roles taken by staff influence the sequence of events?
  – Are impeding events planned for in the exercise? Are they credible?
  – Does the simulation include a logical end point?

• Step 6: Analyze the database and reactions to possible participant actions.
  – What are the types of data that will be available upon participant request?
  – Does the database include correct, inconsequential and inappropriate sources of information?
  – What types of simulation reactions to participant actions are included (e.g., test results, newspaper reactions, communications from superiors, etc)?
  – Is a broad range of simulation reactions available in the event of the participants taking an unusual course of action?
Similar Evaluation Checklists are Available on Web Site

- **Diagnostic Simulations**, p. 9-10
- **Crisis-Management Simulations**, p. 9
- **Social-System Simulations**, p. 11
- **Empathy/Insight Simulations**, p. 10-11

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Want some fun?

- Try this sim . . .

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Assignment

- **Read Readings Seven:**
  - **Ten Secrets of Successful Simulations** by R. Garry Shirts
  - **Ten ‘Mistakes’ Commonly Made by Persons Designing Educational Simulations and Games** by R. Garry Shirts
  - Answer the questions posted for the reading above. Email them to me.