
Training Kirkpatrick's Four Levels of Evaluation

*Instructional Development and Production IT 5110
November 25, 2002*

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This document provides an in-depth description of the analysis, design, and evaluation findings used to develop an seventy-minute instructional lesson for students enrolled in the Information and Learning Technologies curriculum at the University of Colorado at Denver.

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INTRODUCTION TO THE PROBLEM

In the field of training, there has been much discourse on the topic of evaluation. Upon the completion of a course, trainers are burdened with the task of quantifying and validating their instruction. How effective was this course? Did it teach the learners what they needed to know? Are they applying their new skills on the job? How could the program be improved for the next group of trainees? Is the company getting its money's worth?

A successful evaluation system is one of the most powerful ways to improve training. The feedback received from an evaluation provides critical information that can be used to "fix" ineffective training programs and to make good ones even better. Trainers can analyze evaluation results and identify if their training was well conducted, what areas need improvement, whether or not trained skills have transferred to the work place, and provide businesses with performance measures on their investment.

However, there are several issues with assessment that instructional designers must be able to address when employing an evaluation strategy into their training. One of the major issues facing evaluation is that it can be costly for corporations and training institutions to implement successfully. As a result, evaluation is often reduced to low-cost measures such as "smiley" sheets and ranking scales in order to gather students' opinion of the program. Although these methods provide some feedback, they fail to provide a true, pragmatic

assessment of a training program. Another obstacle is student buy-in for their feedback. Often there is no motivation for the student to participate in course evaluations, especially if students believe that their opinions are inconsequential and will not have any effect on the training material.

Although cost and student participation are important factors in the evaluation process, perhaps the most important factor that influences effective and successful evaluation is the instructional designer's expertise. If instructional designers are not skilled in assessment techniques, they will not be able to employ effective evaluation strategies that help them determine if their learning and business objective have been met.

One of the most popular evaluation methods is Donald Kirkpatrick's four-level evaluation model. Introduced in 1959, Kirkpatrick's model is one of the most widely used evaluation techniques used today. It is therefore imperative that instructional designers and trainers be proficient in Kirkpatrick's evaluation methods and strategies.

SECTION 1 - PERFORMANCE ASSESSMENT, GOAL ANALYSIS, RECOMMENDED SOLUTION

Performance Assessment

Problem Identification

The target audience for this training event is a cohort of first year graduate students in a field of information and learning technologies. Throughout the program, the cohort will learn evaluation techniques for gathering and analyzing feedback in order to improve the quality of their training materials. They will also learn skills to determine what information they need, which evaluation model to use, how to analyze the data, and how to convert it into measurable results. Without mastery of these skills, they will lack the foundation required to create effective learning materials.

Identified Discrepancies

Based on the results of a learner analysis, it was determined that the target audience does not have a sufficient understanding of Donald Kirkpatrick's four-level evaluation model. The benefits for providing this information include:

- Better utilization of assessment strategies and tools for student feedback,
- Better analysis of the success or failure of training programs, and

- Better data collection for valid business or performance results.

Goal Analysis

The section presents the instructional goals considered for the training program and ranks the goals in the order in which they will be addressed in the lesson plan. It should be noted that the trainers of this event are also the subject matter experts (SMEs) of the topic.

Aim

To provide information regarding training evaluation concepts, applications, techniques and tools that will be useful to future instructional designers. The focus will be on the Kirkpatrick model.

Set Goals

- Provide an overview of training evaluation; i.e., why are training evaluations necessary?
- List the four levels in the Kirkpatrick's model
- Explain the difference between formative and summative evaluations
- Explain the difference between the terms *evaluation* and *assessment*
- Other than Kirkpatrick, list four evaluation models and associated authors
- List at least five reasons why training evaluations fail to meet their objectives
- Show examples of evaluative instruments (forms) for each Kirkpatrick level
- Explain when to use each Kirkpatrick level
- Explain who Donald Kirkpatrick is
- Explain objective versus subjective approaches to evaluation (hard versus soft data)
- Discuss the process used to plan and implement a good training evaluation
- Explain how to conduct a cost-benefit analysis for a training program
- Explain which evaluative instrument you would use for each evaluation level

Refine Goals

- Provide an overview of training evaluation; i.e., why are training evaluations necessary?
- List the four levels in the Kirkpatrick's model
- Explain the difference between formative and summative evaluations
- Explain the difference between the terms *evaluation* and *assessment*
- Explain when to use each Kirkpatrick level
- Explain who Donald Kirkpatrick is
- List at least five reasons why training evaluations fail to meet their objectives

- Explain objective versus subjective approaches to evaluation (hard versus soft data)
- Explain which evaluative instrument you would use for each evaluation level

Based on the restrictions of time from the context analysis, the goals were refined to fit into a seventy minute presentation.

Goal Ranking

1. Provide an overview of training evaluations and explain why they are necessary
2. Explain the difference between the terms *evaluation* and *assessment*
3. Explain the difference between formative and summative evaluations
4. List the four levels in the Kirkpatrick's model
5. Explain when to use each Kirkpatrick level
6. Explain which evaluative instrument you would use for each evaluation level
7. Explain objective versus subjective approaches to evaluation (hard versus soft data)
8. List at least five reasons why training evaluations fail to meet their objectives

Recommended Solution

The recommended solution is to provide training on the evaluation process, with a focus on Kirkpatrick's four levels of evaluation. Up front training materials will provide the learners with an overview of the main topic areas. This will be followed by an 70-minute class presentation, which includes a case study application.

SECTION 2 - LEARNER AND CONTEXT ANALYSIS

This section identifies the learner characteristics of the target audience and the describes the methods used to collect data regarding learner background, attitude, skills, and learning styles.

Learner Analysis

General Characteristics

A survey was conducted to solicit information regarding the general background information of the learners involved in this training program. The following results illustrate the general characteristics of the target audience.

Gender:

- 61% Female
- 39% Male

Age:

- 6% 18 – 24
- 44% 25 - 34
- 22% 35 - 44
- 28% 45- 54

Employment:

- 72% Full Time
- 22% Part Time
- 72% Telecommute for work
- 28% Do not telecommute
- 6% Not Employed

Occupational Title:

- 39% Support Occupations - Administrative
- 39% Education
- 22% Management - Line & Middle Management
- 17% Management - Staff
- 11% Health Practitioners
- 33% Other

Industries/field:

- 44% Computer/Software
- 17% Computer/Hardware
- 22% Health Care
- 17% Transportation
- 11% Manufacturing
- 11% Retail/ Wholesale
- 11% Information Services & Data Processing

Primary functional work areas for the jobs you have held:

- 72% Education/Training
- 39% Creative, Design
- 28% Instructional Design
- 28% Sales
- 22% Finance
- 17% Administrative
- 17% Customer Support
- 17% Consulting

The results of the general characteristics survey indicate that the majority of our audience is currently working in support or educational environments. The primary functional work areas illustrate that a large percentage of the audience has worked in the fields education, training, and/or instructional design. These results demonstrate a need for our audience to learn and practice evaluation techniques.

Specific Characteristics

An additional topic-specific survey was created to identify more specific information about the learners' interest and knowledge about the topic of evaluation and Kirkpatrick's four levels of assessment. Several of the responses from the survey, in which students were asked what they thought was important about evaluation, demonstrated that the students regard evaluation as important or "core" to the instructional design process but many commented that they felt it was a "waste of time" and ineffective. When asked if the students were familiar with Kirkpatrick, 72% of the learners stated that they were *not* familiar with Kirkpatrick's four levels of assessment. Based on this information, the topic of evaluation and Kirkpatrick will require an appropriate learning strategy in order to introduce the content to an audience of novices and make it relevant to their professional objectives.

Learning Styles

The learners were asked to identify their learning style according to a learning style inventory survey that was conducted earlier in the semester. The following is a representation of the different learning style results:

- 29% Verbal
- 12% Audio
- 53% Visual
- 71% Kinesthetic
- 12% Sequential

Based on this information, we will aim to create a training event that includes several visual representations and activities that allow for an active participation in learning the content.

Context Analysis

This section illustrates a contextual analysis of the training and includes the orienting context and the instructional environment in which the training will occur.

Orienting Context

The results from the topic-specific survey demonstrate that the target audience does not have sufficient understanding of Kirkpatrick's four-step evaluation model. The results also indicate that while students think evaluation is important for instructional designers they often do not see the value of it as students. According to the survey response, the learners are interested in learning what the Kirkpatrick model is, how they can use it, and what types of information the evaluation strategies will provide them.

Instructional Environment

An analysis of the instructional environment determined that:

- Training is limited to an 70-minute in class training session
- Training would be conducted in a classroom setting with adequate capacity
- Computers will not be required for in-class training event
- An overhead projector will be available to supplement in-class presentation

SECTION 3 - TASK ANALYSIS

The following task analysis was conducted based on the results from the learner and context analysis (Section 2). Table 1 presents a high-level outline of the training content as it will be covered for the in-class presentation.

TABLE 1. Task Analysis

- 1.0 As an instructional technologist, what steps need to be taken for an effective assessment program in the instructional design process?
 - 1.1 Introduction to evaluation
 - 1.1.1 Reasons for evaluations
 - 1.1.2 Reasons why evaluations are not effective
 - 1.1.3 Review of survey results with cohorts
 - 1.2 Definition of terms
 - 1.2.1 Difference between evaluation and assessment
 - 1.2.2 Difference between formative and summative evaluation
 - 1.3 Models of evaluation
 - 1.3.1 Kirkpatrick four levels of evaluation
 - 1.3.2 Objective approach
 - 1.3.4 Goal-free
 - 1.3.5 CIPP
 - 1.3.6 Naturalistic
- 2.0 As an instructional technologist, what the steps (how and why) in implementing an effective Kirkpatrick evaluation program?
 - 2.1 Kirkpatrick model for evaluation
 - 2.1.1 Level 1 - Reaction
 - 2.1.2 Level 2 - Learning
 - 2.1.3 Level 3 - Behavior
 - 2.1.4 Level 4 - Results
 - 2.2 Level 1 evaluation
 - 2.2.1 Definition
 - 2.2.2 Checks participant's response to
 - 2.2.3 Examples
 - 2.3 Level 2 evaluation
 - 2.3.1 Definition

- 2.3.2 Checks participant's response to
- 2.3.3 Examples

- 2.3 Level 3 evaluation
 - 2.3.1 Definition
 - 2.3.2 Checks participant's response to
 - 2.3.3 Examples

- 2.4 Level 4 evaluation
 - 2.4.1 Definition
 - 2.4.2 Checks participant's response to
 - 2.4.4 Examples

SECTION 4 - INSTRUCTIONAL OBJECTIVES

This section identifies the main objectives considered for the unit of instruction and classifies the objectives according to their performance-content.

Unit Objectives

At the completion of this unit, learners will be able to complete the following:

1. Recall, with 100% accuracy, Kirkpatrick's four levels of assessment.
Fact - Recall

2. Describe components of effective level 1, 2, 3, 4 evaluation.
Fact - Recall

3. Given an instructional problem, the learner will plan an effective evaluation program.
Concept - Application

4. Identify the issues with evaluation and discuss the benefits of effective evaluation strategies.
Concept - Attitude - Application

SECTION 5 - INSTRUCTIONAL SEQUENCE AND STRATEGIES

This section explains the decisions that were made when sequencing the content of the instructional unit and details the types of activities that will be implemented to provide the most effective means of instructing the content.

Instructional Sequence

Although the topic of evaluation and Kirkpatrick's four-step model provides content that could require several hours of training, the context analysis requires that instruction only last seventy minutes. Therefore, the instructional sequence will be constructed to provide the basic information to the topic for beginning level understanding.

Using Posner and Strike's sequencing scheme the instruction will use the following sequence:

- Identifiable prerequisite: Introduce the topic of evaluation
- Familiarity: Define evaluation models and identify problems with assessment. Introduce Kirkpatrick model and the four-steps and strategies.
- Difficulty: Teach the four-levels of evaluation from lowest to highest. Provide examples and visuals of evaluation techniques.
- Interest: Identify the reasons why evaluation fails and why effective evaluation is an important step in the instructional design process.
- Development: Teach students to identify when to use the different levels of evaluation and what techniques to use within a training event based on the desired performance measurements.

Instructional Strategies

The following strategies will be used to deliver the training:

- Group instruction: Teaching an entire group at once will enable a basic-level understanding of the content within a given time constraint.
- Visuals and guides: Provide examples of the different evaluation steps and strategies for each.
- Small groups and case study: Break the learners into groups to discuss an instructional problem or case study to enable discussion and deeper-level processing.

SECTION 6 - PRE-INSTRUCTIONAL STRATEGIES

The pre-instructional strategy for the training event will include a reading assignment that will introduce the audience to the topic of evaluation and Kirkpatrick's four levels of assessment. The information provided in the reading assignment will provide a foundation for the detailed investigation of evaluation and the strategies involved in Kirkpatrick's evaluation model.

SECTION 7 - EVALUATION PLANS

The following formative and summative evaluation plans will help to determine what areas of the instruction can be improved before and after the training event.

Formative Evaluation Plan

Our plan for conducting a formative evaluation was to have subject matter experts (in this case, other trainers) review our presentation. We wanted to ask the opinions of other trainers because we feel that as trainers they have much better insight on our transitions, flow, sequence, and materials. In addition, trainers are often students themselves and can offer suggestions for how to improve training from a student perspective. Ideally, the interview session would involve trainers acting as the test audience, after completion of the program we would have an interview session to determine areas needing improvement. Unfortunately, we were not able to conduct the formative evaluation with trainers prior to our training event.

The following depicts the method we wanted to use in our formative evaluation (interview, testing, etc.) and the questions we would have asked if more time was available.

1. Given the objectives for the unit, is the level of learning acceptable? What weaknesses are apparent?

Method: Interview prior to in-class training event

Who: SMEs/trainers

Q. Was there anything unclear about the objectives of the course?

Q. Did the objectives give you a good understanding about what the course was going to cover?

2. Are learners able to recall knowledge at an acceptable level based on the content?

Method: Review post-test questions with SMEs to determine if the content is covered on the post-test prior to in-class training event.

Who: SMEs/trainers

Q. What is missing from the content that would affect performance on a post-test?

Q. Is there anything about the post-test that is unclear?

3. How much time did the instruction and learning require? Is this acceptable?

Method: Observation during training event

Who: SMEs/trainers

Q. Was the pace of the instruction adequate? Was there any part that seemed too rushed or too long?

4. Did the activities seem appropriate and manageable to the instructor and learners?

Method: Interview and discussion prior to in-class training event.

Who: SMEs/trainers/self-assessment by team members

Q. How did the activity support or not support the understanding of the topic?

Q. Was the activity easy to understand? Why or why not?

5. Were the materials convenient and easy use?

Method: Interview prior to in-class training event.

Who: SMEs/trainers

Q. What was your opinion of the pre-instructional materials?

Q. Was there anything in the pre-instructional materials that was not covered in the training?

6. What were the learners' reactions to the method of study, activities, materials, and evaluation methods?

Method: Survey after the delivery of in-class training event.

Who: Learners

Q. What was your opinion of the course? materials?

7. Do the unit tests and other outcome measures satisfactorily assess the instructional objectives?

Method: Review post-test questions with SMEs to determine if the content is covered on the post-test prior to in-class training event.

Who: SMEs/trainers

Q. Are there any areas in the post-test that are not adequately covered in the training content that would affect performance?

8. What revisions in the program seem necessary?

Method: Interview prior to training event.

Who: SMEs/trainers

Q. How would you revise the presentation? (give some examples)

9. Is the instructional context appropriate?

Method: Interview prior to training event.

Q. Within the time given, do you feel the instruction was presented effectively?

Summative Evaluation Plan

The summative evaluation was created by the instructional design class. The following questions were determined as appropriate for evaluating the presentation.

1. List two or more aspects of the presentation that you liked most. Why?
2. How could this presentation be improved? (i.e. flow, sequencing, interest, fun, dynamics)
3. Which instructional strategy was the most effective. Why?
4. Which instructional strategy was the least effective. Why?
5. What are the “key” take-aways from the presentation.
6. Did the pre-instructional strategy aid your understanding of the topic? If “Yes”, how? If “No”, why not, and how could it have been improved?

In addition to the above summative evaluation, we will be reviewing a videotape of our presentation for self and group assessment of our presentation. This information will help us determine areas of individual and group performance.