Entelechy's Practical Design and Development Tips

How to Cut
Design and Development Corners
Without Cutting
Instructional Quality

Version 20021004

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Table of Contents

Introduction

Why This eGuide?

It's About Time

Instructional design is a methodical, planned approach to creating effective training. It goes by many names – Instructional Systems Design, Instructional Design, Labor…. Regardless of name, each system follows a prescribed series of steps and processes to accomplish the task of designing training that is instructionally sound.

The problem is, by the time you've analyzed, designed, and developed following the prescribed steps, the need driving the training has long since disappeared. Or worse, the training has become so bloated and laden with stuff "they need to know" that the training – as designed – will certainly miss its mark. Or the ultimate training nightmare, the need has changed and the training – as designed – no longer meets the current need.

Using the traditional lock-step approaches to design and develop training typically doesn't cut it in today's fast-paced, ever changing world. This eGuide was created to help you shorten the training design and development cycle, focus the training on key outcomes, and create training that is twice as impactful in half the time.

About This eGuide

This eGuide does NOT contain a new approach to instructional design. You won't find any blinding flashes of brilliance in here.

To give you a feel for what you're about to read, let me relate this eGuide to two television shows that we all stumble across as we search for other stuff on the tube:

> Love her or hate her, Martha Stuart does provide some unique and practical hints. Like the hint to use ice cubes of frozen juice to cool your summer beverage. That's simple, practical, and pretty neat. This eGuide follows this Martha Stuart approach: find a simpler, more effective way. Now, just to be clear, I'm not a homemaker and even less of a gardener or host. In fact, the only reason I even know what Martha does is because my wife usually controls the remote. The fact is, Martha finds unique and simple ways to do things – ways that you and I say, "Wow, that's pretty neat!" or "That is so cool!" That's what you'll find here.
>
> A show that I find fascinating and utterly frustrating is The Yankee Workshop. In it, our host invites us to join him as he makes a bench or table or 12th century armoire with inlaid gold leaf. I LOVE working with wood so naturally, I'm drawn to the show. My attraction diminishes and my frustration grows when we walk into the host's "workshop" – a building roughly the size of a city block filled with every conceivable woodworking tool. The host invites us to "use your triple-knuckled dove-tail planer" to "create a simple mortised bi-angled thrust joint." I'm left to figure out if I can do that with my "workshop" – a workbench made from leftover 2x4s, a rusty saw, and a screwdriver.

Unlike The Yankee Workshop, you WON'T find inane suggestions here; the tips in this guide are simple, effective, and infinitely implementable – even if your current instructional design tools are a rusty saw and screwdriver!

Deviation Begins With Conformity

To make this guide most usable to most training designers and developers, I patterned it after a commonly used instructional design model, ADDIE. This way, you can, for example, flip to the section on analysis to find tips and shortcuts on analyzing. In short, you need to know the process in order to deviate from it.

Therefore, we'll start our book on deviations, shortcuts, and tips by first looking at the traditional instructional design and development model. We'll use as a reference a model that's been around since the first instructional designer created a class on how to safely hunt mammoths.

A Word About Great Designers and Developers

Great designers and developers are continually balancing two primary elements in their work: design/development time and instructional effectiveness.

In this eGuide, we focus on reducing design/development time without sacrificing (or sacrificing only a little) instructional effectiveness.

Great designers and developers know that reducing design/development time is important. They can train more people more quickly on issues that are more current.

Great designers and developers know, however, that reducing design/development time is SECONDARY to instructional effectiveness. If it takes you half the time to develop a class that is instructionally half as effective, you've lost the game.

The goal is to maintain – or even increase – the instructional effectiveness while reducing the time and effort it takes to create the training.

Why Entelechy, Inc.?

Entelechy began with a simple premise: customized training is more effective than generic training. For that reason, Entelechy doesn't do public workshops or seminars. We never deliver training without modifying it to address the specific needs and environment of the client.

When you make your living at customizing training – designing and developing thousands of modules – you learn or create shortcuts, shortcuts that reduce the time and effort of customizing training without ever sacrificing the instructional quality of the training.

This eGuide reflects the learnings gained from the countless modules, programs, job aids, and consulting that Entelechy and our friends in training have provided over the years. Specifically, we recognized the following for their contributions to make this eGuide complete:

- Joanne Casino, Entelechy Vice President
- Donna Iacopucci, Independent Contractor
- Pam Martin, Entelechy Performance Consultant
- Marty Wilcox, Entelechy Quality Control and Production Manager
- George Cann, Oxford University Trainer, Oxford Health Plans
- Nicole Davis, Educational Consultant for Nielsen Media Research
- Lynne Hayden, Salescape

Oxford University

Nielsen
Media Research

We are continually adding to this list of contributors, so please share your instructional design and development tips and techniques with us so that they may be shared with your colleagues.

For More Information

For additional tips, techniques, and insights regarding training and how YOU can ***unlock your potential***, contact us at design@unlockit.com or join us at www.unlockit.com.

en·tel·e·chy:
unlocking potential

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ADDIE

Introduction

By definition, in order to deviate, you must first conform. It is from this perspective that we preface our discussion of instructional design deviations (shortcuts, tips and techniques) with a discussion of the industry's most widely-used instructional design and development model – ADDIE.

ADDIE stands for:

- Analyze
- Design
- Develop
- Implement
- Evaluate

ADDIE is by no means the only instructional design model used today. In fact, Entelechy prefers the model advocated by authors Dick and Carey called Instructional Systems Design (ISD) and the Content-Based Design model proposed by Merrill. (See http://www.hbg.psu.edu/bsed/ for an overview of different instructional design models.)

The fact is that most of the models in use today resemble the ADDIE model. Each is based on some fundamental beliefs about how people learn and how instruction should be shaped in order to help people learn more faster. And, like ADDIE, most of the models consist of a series of prescribed steps to follow and elements to consider.

This section is provided only as a grounding for people not familiar with an approach to designing and developing instruction. If your idea of creating training is to reproduce some screen shots of the new application and talk through them, please (PLEASE) read this section! If you are ever off the mark with your training or find that the end-of-course smile sheets politely suggest that you should consider another line of work, please read this section!

If you follow an instructional design model faithfully and the model ISN'T ADDIE, you may want to scan this section to correlate your model to ADDIE.

If you are an ADDIE user (would you be an ADDIECT?), you may choose to skip this section entirely.

An Overview of ADDIE

The ADDIE (analyze, design, develop, implement, and evaluate) instructional design model is a basic model that holds true for any type of learning, including web-based training (WBT). The ADDIE model includes the following phases, steps, and products:

Phase	***Analysis*** Identify the probable causes for a performance gap.	***Design*** Verify the desired performances, the learning tasks, and the appropriate testing strategies.	***Development*** Generate and validate the training materials.	***Implementation*** Prepare the training environment and conduct the training.	***Evaluation*** Assess the quality of the instructional products and processes.
Steps	• Conduct a performance assessment • Determine goals • Conduct a learner analysis • Conduct a resource analysis • Determine the likely delivery system	• Conduct a task inventory • Compose objectives • Generate testing strategies • Calculate return on investment	• Generate instructional strategies • Select or develop supporting media • Develop the Learner Guide • Develop the Facilitator Guide • Revise using formative evaluation data • Conduct a pilot test	• Select, prepare, and schedule learners • Select, prepare, and schedule facilitators	• Determine quality assurance criteria • Select evaluation tools • Conduct evaluations
Product	Analysis Summary	Design Brief	Development Summary	Implementation Plan	Evaluation Plan

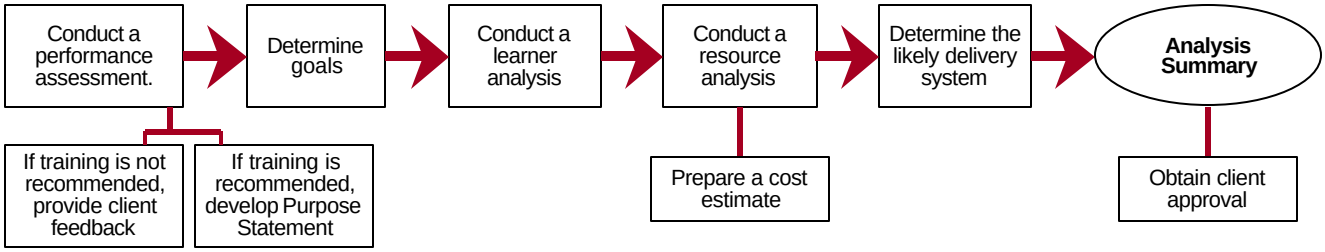
We will look at each phase and step in more detail on subsequent pages.

ADDIE – Analysis

Overview

Purpose: Identify the probable causes for a performance gap.

Procedures: The main procedures that are carried out during the Analysis phase are:



Product: The main deliverable at the conclusion of the Analysis phase is the Analysis Summary.

Synopsis: In this phase, you ask questions such as:

- Who are your learners?
  - Who is your audience?
  - What do they already know?
  - What are their learning characteristics?
  - What do they need or want to learn?
  - Why do they need it?
  - In what environment will they apply the learning?
- What are you trying to achieve with your instruction?
  - Define the need for, and the general aim or purpose of, the course/subject/lesson.
  - This is the overall goal or rationale for the course.
- What knowledge, skills and attitudes need to be taught?
  - Determine what must be taught in order to satisfy the learners' needs.
- How much content do you need in your instruction?
  - Set the scope of the content to be covered in terms of time required, number of lessons and topic areas.

In addition, you must look at your project requirements:

- What is the budget?
- What are the delivery options?
- What constraints exist?
- When is the project due?

Conduct a Performance Assessment

Overview: Though it seems hard to believe, instructional designers are often asked to develop training courses to teach people to do things they already know how to do or to solve problems that can't be solved by instruction. A Performance Analysis helps to prevent these situations by revealing the differences or discrepancies between what people are currently doing and what they should be doing; and by determining which of those discrepancies can be eliminated by training.

Performance Discrepancy: A Performance Discrepancy is defined as the gap that exists between the Actual Performance of employees (what they are currently doing) and the Desired Performance of employees (what management would like them to be doing).

How to Discover the Performance Gap: The first step in analyzing performance during the Analysis phase of the ADDIE process is to discover the Performance Discrepancy or Performance Gap:

1. Measure the Actual Performance
2. Confirm the Desired Performance
3. Recognize the Performance Discrepancy between Actual and Desired Performances
4. Identify the causes for the Performance Discrepancy

Causes of the Performance Discrepancy: Once the extent of the Performance Discrepancy or Performance Gap has been determined, you need to discover the cause of the performance gap. In general, there are three causes of performance gaps, each of which can be subdivided into several categories:

1. Can't
2. Won't
3. Don't Know How

How To Discover the Cause of the Discrepancy: There are several ways to discover the cause of the Performance Discrepancy. The ones most frequently used are:

- Interview the employees in the "learner" group
- Conduct focus groups
- Ask the learners' managers for insight
- Review the process used
- Review incentive plans
- Identify coaching and feedback mechanisms

Determine Goals

Overview: Each training recommendation should include a brief list of the Instructional Goals that you expect learners to meet during the training as well as the statement of Purpose.

Definition: Instructional Goals describe the "terminal" tasks that learners will perform as a result of the training. They answer the question (at the macro level), "What will learners be able to do as a result of successfully completing this training?" Note that they describe performance and do not specify the criterion (standards) for the performance nor conditions under which the performance will be demonstrated.

How to Identify Instructional Goals: Instructional Goals relate to the cognitive domain. The type of learning that is required to accomplish a task should guide the development of instructional goals. The first step is to determine if a learner needs to:

1. Recall something that is already known.
2. Interpret existing knowledge; or comprehend.
3. Use some knowledge or skill in an authentic situation: apply.
4. Identify the parts of a whole and explain their relationships: analyze.
5. Put arts together to form a new whole; or synthesize.
6. Judge the value of something: evaluate.

Conduct a Learner Analysis

Overview: One of the tasks that you will complete during the Analysis phase is to conduct a learner analysis. The data that you collect will impact decisions throughout the Instructional Systems Design (ISD) process from influencing your recommendation of the appropriate training delivery vehicle to helping you select appropriate learning strategies in the Design phase of the process.

Identification of Learner Group(s): The first step is to identify the group or groups of learners who will participate in the training.

Characteristics: Next, describe the general characteristics of the learner group such as:

- Average age
- Gender distribution
- Average level of education
- Cultural makeup

Numbers: Consider the following when determining the number of learners to be trained:

- Total numbers of learners to be trained
- Number of different audience groups per class
- Number of learners per class

Location: The location where training will take place should be determined.

Experience Level: The experience level of the learners should be determined relative to the training knowledge and skills that will be acquired. Determine what the learner already knows and can do before he or she participates in the training.

Attitude: It is valuable to discover the attitude of the learner participant.

Skills Related to Delivery Mode: Learners can't improve their skills if they can't fully participate in the training experience. For example, if the training delivery required learners to use Lotus Notes and the learner is not fluent in Lotus Notes, the training will have little chance of success. Therefore, the prerequisite knowledge and skills the learner must have related to the type of delivery must be analyzed.

Conduct a Resource Analysis

Synopsis: There are four types of Resources that should be analyzed.

- **Content Resources:** Pre-existing resources may be available that contain valuable content.
- **Technology Resources:** It is important to evaluate the available technology that is available for the training delivery.
- **Instructional Facilities:** Instructional Facilities include such things as:
  - Rooms available per location
  - Number of learners accommodated per room
  - Times each room is available
- **Human Resources:** Human Resources that impact both the development and implementation of the training should also be analyzed.

Determine the Likely Delivery System(s)

Overview: The next procedure in the Analysis phase is to evaluate different training delivery systems and recommend the best option(s) that will most effectively provide the outcome you desire from the training. The most common delivery systems include:

- Classroom training
- Computer-based Training (CBT)
- Video
- Web-based Training (WBT)
- Combination (two or more of the above)

Advantages and Disadvantages: Each delivery system has advantages and disadvantages. The selection of delivery system should depend on how well the alternative contributes to the attainment of the training outcome desired. For example, using CBT would be ideal for hands-on practice in developing skills needed for using a new computer software program. Learners in a classroom training without computer equipment would be less likely to attain the outcome desired.

Analysis Summary

Overview: When you have completed your analysis, document your research and describe your findings, conclusions and recommendations. Then provide the client with a report summarizing the information you have gathered and recommending a suggested approach to solving the performance deficiency. The report, called an Analysis Summary, should include the following components:

- A statement describing: performance discrepancy, causes of the performance discrepancy, and potential value-added through training
- A purpose statement for the training project
- A list of the instructional goals
- A learner audience profile
- A list of resources you will require
- Recommended training delivery system options including cost estimates for each option

Performance Gap Summary & Value-added for Training: You should summarize your assessment of the Performance Discrepancy including your analysis of its causes. Clearly indicate whether or not training will be effective in closing the performance gap.

- If the performance deficiency is believed to be caused by a lack of knowledge or skills that training can impact, say so.
- If training is a partial solution, describe the specific value that training will add and the limitations of training as the sole solution.

Purpose: Next describe the specific purpose of the training.

Instructional Goals: Include a brief list of the instructional goals that you expect to meet during the training.

Learner Profile: Provide a summary of the information you learned about the learner audience. Describe learner group(s), characteristics, experience, numbers of learners that will participate in training and any relevant skills that will be necessary to participate fully (computer skills, for example). Include a statement indicating where the learners will participate in the training (on site, off site, central location, etc.).

Resource Summary: Include your summary of the following resources:

- Content resources
- Technological resources
- Instructional facilities
- Human Resources (including Facilitator qualifications)

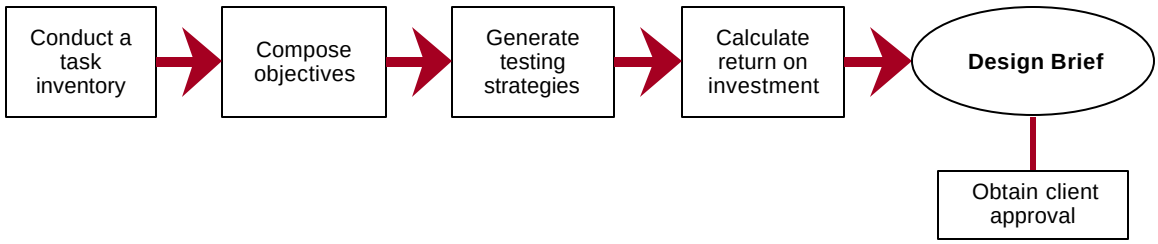
Delivery System: Describe your recommended training approaches including:

- Delivery systems
- Time estimates
- Cost estimates

ADDIE – Design

Purpose: Verify the desired performances, the learning tasks, and the appropriate testing strategies.

Procedures: The main procedures that are carried out during the Design phase are:



Product: The main deliverable at the conclusion of the Design phase is the Design Brief.

Synopsis: In this phase, we ask the questions:

- What are your objectives?
  - The needs analysis should have identified general learning areas, which must be defined in terms of specific measurable objectives or learning outcomes.
- What skills, knowledge and attitudes are you trying to develop?
  - This will be determined by your objectives and will provide the framework for the content. Higher level skills and knowledge should be identified wherever possible so that understanding and problem-solving abilities are developed in learners.
- What resources and strategies will you use in your instruction?
  - Teaching resources and activities should be chosen to complement the learning outcomes.
  - Select the most appropriate environment by examining the kinds of cognitive skills required to achieve your goal.
  - Write the instructional objectives; select an overall approach and the program's look and feel; outline units, lessons, and modules.
  - Design course content specifically for use with the medium.
- How will you structure the content of your learning material?
  - Sequencing, presentation, and reinforcement of the content will rely on grouping of related objectives and activities.
- How will you assess the learners' understanding and whether or not they have met the objectives of the instruction?

- Assessment methods must also be matched to the learning objectives so that there is agreement between what the intended outcomes are and what is being measured by the assessment.

Conduct a Task Inventory

Overview: Although the client may not see the Task Inventory in its entirety, conducting a Task Inventory is the first step in the Design phase.

Four Main Types of Tasks: The four main types of tasks are:

- Knowledge: cognitive tasks
- Skill: motor task
- Attitude: motivation task
- Procedure: sequence of tasks

Content Emerges from Task Inventory: The training content emerges from the task inventory. The tasks and the steps to accomplish those tasks then become the tasks that the participants must learn in the training. Each task in the inventory is relative to the other tasks in the inventory. Some tasks are enabling, some tasks are subordinate and some tasks are prerequisite to the other tasks in the inventory. A complete task inventory defines the scope and sequence of the training content. All learning tasks should be expressed in performance terms. Action verbs should be used to form the knowledge, skill, attitude and procedural statements that form the task inventory.

For some jobs, it makes more sense for a new worker to be trained and become proficient in one duty and then move to the next. In other jobs, a new worker might have to learn the tasks associated with multiple duties simultaneously.

Be consistent with your working definition of the word "task" and how you articulate task statements. For example,

- Tasks are usually considered meaningful units of work for which an employer is willing to pay.
- Tasks have beginning and ending points; for continuous process tasks, this might be the beginning or ending of a shift.
- Tasks are independent of each other, can usually be observed, and the task or its results can always measured.

  For instance, changing the oil in an automobile can be considered a task. However, draining the old oil is not a task because it is part of the task of changing the oil and is not therefore done independently.

When doing the task analysis:

- Articulate all task statements with short sentences (usually two to seven words) that succinctly and accurately describes the observable, measurable performance, for example, "Produce widgets" or Perform monthly maintenance."
- Don't include references to knowledge, training, skills, or attitudes in the task statement itself.

- Don't include modifiers unless absolutely necessary to ensure universal understanding. For instance the second example "perform monthly maintenance" contains the modifier "monthly." This would be appropriate in a situation where there might be multiple maintenance schedules with "monthly" being one of those.
- For each task, develop as many statements of performance standards as necessary to explicitly describe the "yardstick" that an observer must use to determine if the task has been performed to the standards set by the company. Accurate statements of performance standards, including references to safety procedures, ensure that the same yardstick measures all workers. Don't use subjective terms such as *correctly*, *in a timely manner*, and *appropriately* that may be interpreted one way by one person and another way by someone else. This eliminates potential inconsistencies in training and worker claims of unfair evaluation.

When you think you have all of the performance standards listed for a task, ask yourself (or a subject matter expert) this simple question: "If the worker performs this particular task and meets all of these standards, do we know that task has been done correctly?" If the phrase "yeah, but" comes up in answer to that question, then the performance standards are not complete! Don't stop until the answer is an unequivocal "yes."

Analyze Performance: Your list of performances can then be analyzed according to the knowledge, skills, procedures and actions that one must demonstrate in order to reach the goal. Rank each task as to:

- How difficult it is to learn
- How frequently it is performed
- How critical it is that the task be performed correctly (to the performance standards)

Use these rankings to identify where job aids or refresher training might be needed. These rankings will also help match development efforts to the real-world needs of the business. Another benefit might be a clue to the sequence of content for training, with simpler, non-critical tasks being taught before more complex and critical ones. However, keep in mind that in some structured On-the-Job Training (OJT) environments, training must follow the sequence dictated by the real-time events on the production floor.

Prerequisite Tasks: The last step in conducting a Task Inventory is to determine the prerequisite knowledge and skills the learners are expected to bring to the class. Therefore, a cut-off point is determined in the Task Inventory. Upon entering the training, the learners are expected to be proficient in the Knowledge and Skills below the cut-off line. The knowledge or skills below the cut-off line are called "Prerequisites."

Compose Objectives

Overview: The second task in the Design phase of the ADDIE Instructional Systems Design process is to Compose Performance Objectives. An objective defines exactly what the training should accomplish. An objective is a clear definition of the:

- Expectations for the learner
- Performance you want learners to exhibit before you consider them competent
- Intended result of instruction

Value of Objectives: Objectives are like the destination for a trip you're about to take. Objectives are the end point that you have in mind before you plan your route to get there.

Practical Uses of Objectives: Objectives:

- Provide a sound basis for selection of learning materials, content and methods
- Provide a way to measure whether the learning has been attained
- Give the learner an opportunity to accomplishment the objectives

Components of an Objective: There are three components of a learning objective:

- Performance
- Condition
- Criteria

Generate Testing Strategies

Overview: Testing is an integral part of any training program.

- It provides feedback to the instructor on whether learning is taking place
- It provides feedback to the learner on the progress he or she is making toward gaining knowledge and skills
- It provides feedback to the designer on how well the training is meeting the objectives and goals for which it was designed

Definition of Learning: It is important to discover answers to the following questions:

- Did the learner demonstrate the required performance?
- Did the learner meet the criteria for performance?
- Did the learner perform under the condition specified?

Matches the Objective: In fact, it is important that the test item that is generated to "test" for learning is congruent with the specific objective:

- Performance Match - If the objective is stated that the leaner will "apply" guidelines, then the test should evaluate whether the person has applied the guidelines.
- Condition Match - The test should also be congruent with the condition that appears in the objective. If the objective states that the person should be able to discriminate between aircraft and the test shows pictures of aircraft, then the conditions in the test have not matched the objective. Discriminating between *pictures* of aircraft is not the same thing as discriminating between *real* aircraft."
- Criteria Match - Not only should the test match the performance and condition stated in the objective, but the criteria used in the test should also be congruent with the criteria stated in the objective.

Matches the Task: Not only should the test be congruent with the objective, but it also should be congruent with the task that is required to demonstrate the desired performance.

Calculate Return on Investment

Overview: An important procedure to complete in the Design phase is to determine the Return on Investment (ROI) provided by the training. There are multiple uses for calculating the ROI of any training event:

- Company use
- Manager use
- Learning Services use

Calculating ROI: The procedure for calculating ROI is as follows:

- Calculate the training costs
- Calculate the benefits derived from the training
- Compare the training benefits to the training costs

ROI Formula: ROI (in percentage) = (Training Benefits/Training Costs) X 100

Additional Resources: Contact info@unlockit.com for a free copy of *Entelechy's Return On Training Investment Calculator.*

Design Brief

Overview: When the procedures of the Design phase have been completed, organize your work into a format to present to the client. This format is often called a Design Brief. The following components are included in a Design Brief:

- A sequenced list of learning tasks
- A sequenced list of performance (learning) objectives
- A list of testing strategies
- Summary of benefits (ROI in some situations)

Sequenced List of Learning Tasks: Using the job task inventory as the basis of the design, the tasks are organized by each instructional goal the designer expects to meet in the training. The tasks are then shown in the Design Brief in the sequence in which they appear in the training.

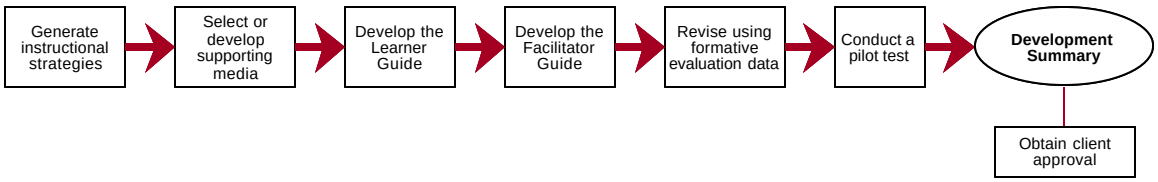
Sequenced List of Performance (Learning) Objectives: Along with each objective, the Design Brief should indicate how the learner's performance on meeting that objective will be evaluated. The test items should show a high congruence with the tasks and objectives specified in the document.

Summary of Benefits (or ROI Calculation): More and more companies are requiring that a Return on Investment (ROI) calculation be included in the Design Brief. ROI is viewed as a forecast of the outcomes expected as a result of investing in training.

ADDIE – Development

Purpose: Generate and validate the training materials.

Procedures: The main procedures that are carried out during the Development phase are:



Product: The main deliverable at the conclusion of the Development phase is the Development Summary.

Synopsis: In this phase, you:

- Develop the training.
- Obtain and/or create the required media.
- When creating WBT, use the Internet's strength to present information in many different multimedia formats so that the learners' preferences can be met.
- Determine the appropriate interactions. They should be creative, innovative, and encourage learners to explore further.
- For distance learning (including WBT), it is important to consider the lack of socialization opportunities and perhaps plan activities to address the need for participants to interact with each other and the instructor.

Generate Instructional Strategies

Overview: The Instructional Strategies are the means by which the content and skills are transferred from the training delivery vehicle to the learner.

Learner Centered: When generating Instructional Strategies for training, designers should keep in mind that they should be learner-centered. The type of instructional strategy selected should fit the learner's style of learning, rate of learning, and motivation for learning.

Organization and Sequence: Learning Strategies organize and sequence the information and activities through:

- Pre-instructional activities
- Instructional Strategies
- Practice
- Closure

Gagne's Nine Events of Instruction: Professor of Instructional Design, R.M. Gagne, developed a method for organizing these different instructional strategies within the lesson. His method of organization has come to be known as Gagne's Nine Events of Instruction:

1. Gain attention

   Start by gaining your learners' attention using an analogy, anecdote, paradox, photograph, magazine article, demonstrations or any other media, etc. Display an outline of your lecture plan in a visual form (e.g., an illustration, a summary, a diagram, a map, or chart). This gives learners a framework into which they can organize subsequent content.

2. Inform learner of objectives

   Describe what you plan to achieve, what learners will be doing and what they may be using. State 'At the end of the lecture you will be able to….'. Create expectancy via your objectives and description of the structure of the lecture.

3. Stimulate recall of prior learning

   Relate your new lesson to situations or knowledge that your learners are already familiar with (e.g., the previous lesson).

4. Present stimuli with distinctive features

   Describe the key points in your lesson, emphasizing distinctive features, using a variety of techniques if possible. For example, use photos, drawings, the real thing, etc. Vary the format in order to maintain attention and to increase comprehension.

5. Guide learning

   Present your instruction in small steps (chunking) leading from simple to complex.

6. Elicit performance

Involve learners in questioning, discussion and demonstration to confirm that they have learned from your instruction, to increase comprehension and to maintain attention through active participation.

7. Provide feedback

   As learners respond to your questioning, provide them with reinforcement or remediation when necessary.

8. Assess performance

   Use a quiz or assignment to confirm mastery of your objectives.

9. Enhance retention and learning transfer

   Provide the opportunity for learners to apply the outcome of their training in a real world environment (e.g., realistic assignment using real data and equipment. Incorporate the full experiential learning cycle into activities so that students are encouraged to reflect on and analyze their experiences).

Select or Develop Supporting Media

Overview: As training facilitators, instructional designers, and educators have learned through many years of continued research and direct experience, media enriches the learning experience. Select media to perform the following functions:

- Enhance the quality of the learning
- Present or reinforce key points
- Meet the needs of different learning styles
- Fulfill objectives

Meets the Needs for Different Learning Styles: Learning style refers to a group of psychological traits that determine how an individual perceives, interacts with and responds to learning environments. Some researchers categorize learning styles by perceptual preferences and strengths, some by information processing habits, others by physiological factors and still others by motivational factors.

Fulfill Objectives: When selecting media, the most important consideration is to choose the appropriate media that enables the learner to fulfill the objective. If the objective states that the learner will compare and contrast..., select the media that will allow for true comparison. If the objective requires that the learner apply principles, select the media that allows the learner to fully apply the principles whether that is through a demonstration using real objects, a simulation or mock up or other media choice.

Develop the Learner Guide

Overview: Learner Guides vary widely in their structure, format, quality and visual design. Too often they meet poor standards for accuracy, clarity, or visual appeal and provide little support for learning. Top quality Learner Guides utilize the structure, content, writing style, plus the layout and design to enhance the learning process.

Structure: The first category to consider in developing Learner Guides is the main structural components. Learner Guides often have some or all of the following structural components:

- A Title Page
- Copyright and/or Acknowledgments Page
- Table of Contents
- Body
- Glossary
- Appendix

Section Format: Each Section in the body of the Learner Guide should be given extra attention. The section components of the Learner Guide are used most frequently during and after the training. Consider the following aspects of section development:

- Content presentation
- Exercise presentation
- Order or sequence within the section

Quality: The quality of the Learner Guide is reflected in the structure and section format as well as the guide's layout and design. However, within this category (Quality) the focus will be on the following elements:

- Organization
- Clarity
- Accuracy
- Consistency

Layout and Design: The layout and design of the Learner Guide either contributes to or detracts from the learner's ability to use it as a learning tool. For example, graphics add appeal to a Guide that consists entirely of words. However, the graphics add more value if they reinforce the meaning of the content. Learner Guides should also have adequate white space, that is, parts of the page that are left white – where no words or graphics are printed. A Guide with little white space often overwhelms the learner and becomes a barrier for learning. Adequate white space builds confidence in learners. To ensure readability as well, line length should be no more than five inches.

Develop the Facilitator Guide

Overview: To develop a quality Facilitator Guide, one must remember that the Facilitator Guide is often the vehicle that defines the quality of the entire training event. The Facilitator Guide reflects the designer's selection of tasks to be performed by the learners and defines the objectives to be fulfilled. The Facilitator Guide presents the selected instructional strategies that will transfer the knowledge and skills from the instructional designer to the learner. The Facilitator Guide also helps to determine the pace and level of instruction appropriate for the learner group.

Structure: The structure of Facilitator Guides is similar to that of Learner Guides with these exceptions: Facilitator Guides rarely have glossaries; however, they often have an additional section that could be called, "How to Use This Guide."

Section Format: The Section differs in content and format from that in Learner Guides. The body of each section in Facilitator Guides includes:

- Sequential directions for facilitating the section
- Teaching points (content)
- Timing

Quality: The same facets of quality that were important to consider when developing Participant Guides are also important in developing Facilitator Guides. They include:

- Organization
- Clarity
- Accuracy
- Consistency

Layout and Design: Layout and design enhance the ability of the instructor to lead the instruction. Clarity, icons for quick reference and consistency in layout and design all assist the instructor in providing a smooth flow to the course. The less that the facilitator has to think about the Facilitator Guide, the more that the Facilitator can think about the learners.

Revise Using Formative Evaluation Data

Overview: Evaluation in Instructional Systems Design can be defined this way: Data about how students learn specific content information under varying instructional conditions are obtained, analyzed and synthesized into meaningful information that can be used to make decisions about instruction. Evaluation occurs throughout the Instructional Systems Design process. Evaluation:

- Initiates the instructional process
- Permeates the entire process
- Concludes the design and development process
- Guides post-development activities

Types of Evaluation: There are two types of evaluation used in Instructional Systems Design:

- Formative
- Summative

Formative Evaluation: Formative Evaluation is the process of collecting data that can be used to revise the instruction before implementation thus making the instruction more effective.

Three phases of Formative Evaluation: The three phases of Formative Evaluation are:

- One-to-One Trial
- Small Group Trial
- Field Trial

Summative Evaluation: Summative Evaluation is the process of collecting data following implementation (of at least one training class/event) in order to determine its effectiveness (how well it satisfies the instructional goals).

Conduct a Pilot Test

Overview: The Pilot Test is the last step in the Field Trial. Learners who participate in the Pilot Test are expected to meet the objectives in the instruction. Therefore, Pilot Test participants will not be expected to repeat the course. Procedure for conducting a Pilot Test:

1. The participants should be representative of the target population
2. Ideally, several groups would participate in the instruction
3. A facilitator should lead the instruction from the identified facilitator group
4. The client (or person who has the final decision as to the recommendation for implementation) should attend the Pilot Test as an observer

Pilot Test Plan: To implement a Pilot Test, you would first prepare a Pilot Test Plan. The typical components of a Pilot Test Plan include:

- Participant Description
- Prerequisites
- Location, date, time
- Instructional Environment
- Facilitator Qualifications
- Measurement Plan
- Evaluation Team Description

Development Summary

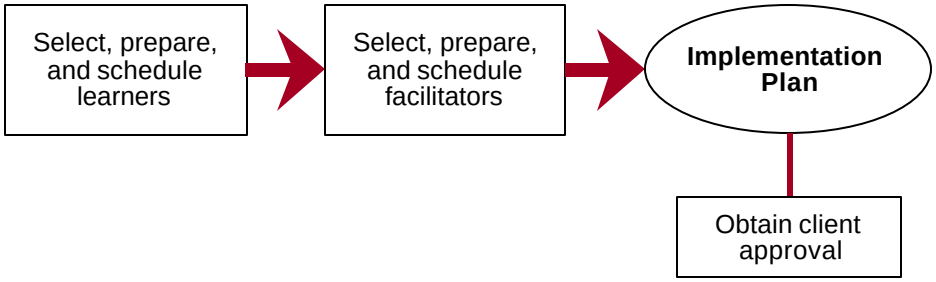
A Development Summary is a project plan of the activities, milestones/deadlines, and responsibilities associated with the development of the training. The Development Summary can include primary activities and secondary/ancillary activities. Activities may include:

- Preliminaries
- Analyze Instructional Goals
- Analyze Performance Needs
- Analyze Technical Requirements/Specifications
- Deliver Analysis Report
- Create Detailed Design
- Submit Detailed Design Document and material samples for approval
- Provide approval to move to next phase
- Develop key labs and experiential activities
- Develop instruction for key concepts and processes
- Write training materials
- Submit final material for approval
- Provide approval to move to next phase
- Walk through the course with instructor and support staff
- Pilot the course with the instructor and support staff
- Approve final changes; revise and deliver final files
- Acceptance of final files

ADDIE – Implementation

Purpose: Prepare the training environment and conduct the training.

Procedures: The main procedures that are carried out during the Implementation phase are:



Product: The main deliverable at the conclusion of the Implementation phase is the Implementation Plan.

Synopsis: In this phase, we implement the training as we've designed it. We may:

- Teach learners how to make the best use of interactive learning materials
- Present classroom instruction
- Coordinate and manage a distance learning program

Select, Prepare, and Schedule Learners

Overview: The Learner Plan has four components:

- Identification
- Schedule
- Notification
- Tracking

Identification: The participant group was carefully defined during the analysis and design phases of the ISD process; therefore, it is necessary only to communicate the established parameters to the scheduler. If learner prerequisites were identified, include a method and the tools that will be used to ensure that individual learners identified for participation will have fulfilled the prerequisites.

Schedule: A schedule for learner participation is then developed. The Learner Plan summarizes the:

- Total number of learners who will participate in the instruction
- Number of learners per class
- Location(s) utilized (including technology resources required for each class location)
- Class lists (may be added later by a scheduler)

Notification: When a learner has been identified and scheduled for participation in a training event, he or she should receive notification or communication about the specifics of the event.

Tracking: The fourth component of the Learner Plan is the tracking component. It describes:

- Tracking requirements
- How long the tracking should be maintained
- Need for official records (FAA, OSHA, etc.)
- How the participants are tracked in the system
- When they will be contacted for evaluation following completion of participation

Select, Prepare, and Schedule Facilitators

Overview: The Facilitator Plan has four components:

- Identification
- Schedule
- Preparation

Identification: Since the facilitator's qualifications were carefully defined during the analysis and design phases of the ISD process, it is necessary only to repeat the descriptions in the Facilitator Plan. The scheduler will be able to use the descriptions in the Plan to identify and schedule qualified facilitators to conduct the training.

Schedule: A schedule is then prepared showing when and where individual facilitators will conduct the training. A date is also determined for conducting the Train-the-Trainer, the event where facilitators are prepared to conduct the training. All facilitators who have been selected to conduct the training are then scheduled for the Train-the-Trainer.

Preparation: If the training is fully or partially instructor-led, the importance of the facilitator's role cannot be over-emphasized. He or she is responsible for leading the training event, setting the pace, providing guidance and assistance, furnishing subject matter expertise and assisting in evaluation. The Train-the-Trainer (TTT or T3) session prepares the facilitators to conduct the training.

Implementation Plan

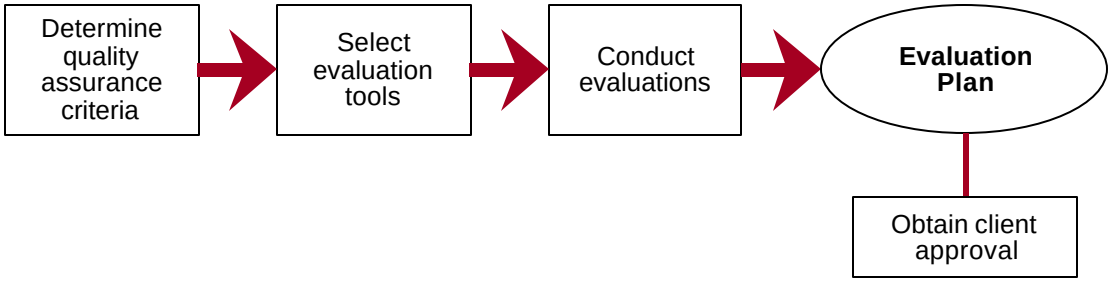
Overview: The Implementation Plan, the Learner Plan, and the Facilitation Plan are incorporated in one document called The Implementation Schedule. The Schedule is used by the:

- Client to stay abreast of the implementation roll-out
- Those with responsibilities for scheduling training
- Those with responsibilities for tracking the participants following scheduling
- Those with responsibilities for evaluating the instruction

ADDIE – Evaluation

Purpose: Assess the quality of the instructional products and processes both before and after implementation.

Procedures: The main procedures that are carried out during the Evaluation phase are:



Product: The main deliverable at the conclusion of the Evaluation phase is the Evaluation Plan.

Synopsis: In this phase, we collect and analyze information that will help us improve the training. Feedback may include:

- Feedback from observers
- Feedback from participants
- Feedback from managers and others who interact with participants
- Self-assessment
- Performance measures (increased sales, reduced error rate, etc.)

Evaluation by both teachers and learners can provide the basis for improvement and development of the instruction. It is even better if somebody else sits in on a lecture and prepares detailed notes about the presentation, content and structure. Videotaping is also a good method for evaluating face-to-face teaching.

Test for instructional standards.

Test for criterion-related referenced items and also test through evaluation of research papers, class participation, and completion of competency skills (Powers, 1997).

Plan several points during the course when students can provide anonymous feedback so that the instructor is aware of student confusion and misunderstanding.

Conduct formative evaluations to improve the course and summative evaluations to judge the effect of the course.

Determine Quality Assurance Criteria

Overview: In 1959 Donald Kirkpatrick wrote a series of articles called, "Techniques for Evaluating Training Programs" that were published in the journal of the American Society for Training and Development. The concepts described in the articles eventually became foundation practices in measuring the results of training. Those same concepts have come to be known as Kirkpatrick's Four Levels of Evaluation.

Jack J. Phillips has researched and extended Kirkpatrick's concepts, eventually adding a fifth level of evaluation. Phillips' Five Levels of Evaluation have been adopted (with minor modifications) by many organizations. Phillips' Five Levels of Evaluation include:

- Level 1: Reaction and Planned Action
- Level 2: Learning
- Level 3: Job Application
- Level 4: Business Results
- Level 5: Return on Investment

Select Evaluation Tools

Level 1 - Reaction: As the word implies, evaluation at this level measures how those who participate in the program react to it. This level is often measured with attitude questionnaires (smile sheets) that are passed out after most training classes. This level measures one thing: the learner's perception (reaction) of the course.

They might be asked how well they liked the instructor's presentation techniques, how completely the topics were covered, how valuable they perceived each module of the program, or the relevance of the program content to their specific job. They might also be asked how they plan to use their new skills back on the job.

Learners are keenly aware of what they need to know to accomplish a task. If the training program fails to satisfy their needs, a determination should be made as to whether it's the fault of the program design or delivery.

This level is not indicative of the training's return on investment, as it does not measure what new skills the learners have acquired or what they have learned will transfer back to their working environments. This has caused some evaluators to downplay its value. However, the interest, attention and motivation of the participants are critical to the success of any training program. People learn better when they react positively to the learning environment.

Level 2 – Learning: This can be defined as the extent to which participants change attitudes, improve knowledge, and increase skill as a result of attending the program. It addresses the question: Did the participants learn anything? The learning evaluation requires post-testing to ascertain what skills were learned during the training. The post-testing is only valid when combined with pre-testing, so that you can differentiate between what they already knew prior to training and what they actually learned during the training program.

Measuring the learning that takes place in a training program is important in order to validate the learning objectives. Evaluating the learning that has taken place is typically focused on such questions as:

- What knowledge was acquired?
- What skills were developed or enhanced?
- What attitudes were changed?

Learning measurements can be implemented throughout the training program, using a variety of evaluation techniques. Measurements at Level 2 might indicate that a program's instructional methods are effective or ineffective, but it will not prove if the newly acquired skills will be used back in the working environment.

Level 3 – Behavior: The level of behavior is defined as the extent to which a change in behavior has occurred because the participants attended the training program. This evaluation involves testing the students' capabilities to perform learned skills back on the job. Level 3 evaluations can be performed formally (testing) or informally (observation). It determines if a behavior change has occurred by answering the question, "Do people use their newly acquired skills, attitudes, or knowledge on the job?"

It is important to measure behavior because the primary purpose of training is to improve results by changing behavior. New learning is no good to an organization unless the participants actually use the new skills, attitudes or knowledge in their work activities. Since Level 3 measurements must take place after the learners have returned to their jobs, the actual Level 3 measurements will typically involve someone closely involved with the learner, such as a supervisor.

Although it takes a greater effort to collect this data than it does to collect data during training, its value is important to the training department and organization. Behavior data provides insight into the transfer of learning from the classroom to the work environment and the barriers encountered when attempting to implement the new techniques learned in the program.

Level 4 – Results: This is defined as the final results that occurred because the participants attended the program: the ability to apply learned skills to new and unfamiliar situations. It measures the training effectiveness, "What impact has the training achieved?" This broad category is concerned with the impact of the program on the wider community (results). It addresses the key question: Is it working and yielding value for the organization? These impacts can include such items as monetary, efficiency, moral, teams, etc. Here we expand our thinking beyond the impact on the learners who participated in the training program and begin to ask what happens to the organization as a result of the training efforts.

While it is often difficult to isolate the results of a training program, it is usually possible to link training contributions to organizational improvements. Collecting, organizing and analyzing Level 4 information can be difficult, time-consuming and more costly than the other three levels, but the results are often worthwhile when viewed in the full context of its value to the organization.

As we move from Level 1 to Level 4, the evaluation process becomes more difficult and time-consuming, although it provides information that is of increasingly significant value. Perhaps the most frequently used measurement is Level 1 because it is the easiest to measure. However, it provides the least valuable data. Measuring results that affect the organization is more difficult and is conducted less frequently, yet yields the most valuable information...whether or not the organization is receiving a return on its training investment. Each level should be used to provide a cross set of data for measuring training program.

Level 5 – ROI: Return on Investment is difficult to isolate and prove empirically. Therefore, many organizations identify specific metrics that are measured before the training and after the training in an attempt to identify a change and then attribute that change to the training intervention. It is critical that other elements affecting ROI be accounted for in the analysis. It would be difficult to attribute increased sales only to training if the entire economy has coincidentally taken an upswing, for example.

Conduct Evaluations

Internal Evaluation: Everyone in the training system is charged with this step. Their focus should be on the instructional processes and the measurement of learning that was gained from the training program. The primary purpose is to determine whether the instructional development effort has accomplished what was intended. Enough data must be collected so that through time, the instruction can be improved based upon learner performance. If a large proportion of learners have trouble with the same segment of instruction, it is reasonable to conclude there is something wrong with the instruction.

External Evaluation: After the internal evaluation has been completed, one major question about the entire training program remains unanswered: Can the learners do the job for which they were trained? The entire training process is designed toward this end. If the graduates do not need what they were taught, or need additional instruction, this information needs to be fed back to the instructional designers.

The various instruments used to collect the data are questionnaires, surveys, interviews, observations, and tests. The model or methodology used to gather the data should be a specified step-by-step procedure. It should be carefully designed and executed to ensure the data is accurate and valid.

Questionnaires are the least expensive procedure for external evaluations and can be used to collect large samples of graduate information. They should be tried out before used to ensure that the recipients of the questionnaire understand the operation in a way the designer intended it to be. When designing questionnaires, keep in mind the most important feature is the guidance given for its completion. All instructions should be clearly stated...let nothing be taken for granted.

The main portion of the questionnaire consists of a list of task statements. The supervisor of the graduates may be asked to rate the graduates on their ability to perform each task listed on the questionnaire.

Evaluation Plan

Overview: The deliverable for the Evaluation phase of ADDIE is the Evaluation Plan. It consists of two parts: the first part consists of the plan for collecting evaluation data while the second part consists of the reporting the results of the evaluation data. To complete the Evaluation Plan:

- Determine the evaluation level
- Determine the evaluation criteria
- Describe the learner participation
- Identify the learners who will be evaluated
- Describe when they will be evaluated
- Describe how often they will be evaluated
- Describe the evaluator participation
- Identify the resources (people, time, schedule) for those who will collect the evaluation data and analyze that data
- Describe the timetable for data collection and analysis
- Develop the evaluation tool or instrument

Reporting the Results: After the evaluation data has been collected, it must be analyzed and then a written report is generated summarizing the data and analysis.

Design and Development Shortcuts

How This Section Is Organized

This section is organized according to the ADDIE model. If you are looking for a shortcut for a specific step or phase, you may want to turn directly to that section:

- Analysis
  - Conduct a Performance Assessment
  - Determine Goals
  - Conduct a Learner Analysis
  - Conduct a Resource Analysis
  - Determine the Likely Delivery System(s)
  - Analysis Summary
- Design
  - Conduct a Task Inventory
  - Compose Objectives
  - Generate Testing Strategies
  - Calculate Return on Investment
  - Design Brief
- Development
  - Generate Instructional Strategies
  - Select or Develop Supporting Media
  - Develop the Learner Guide
  - Develop the Facilitator Guide
  - Revise Using Formative Evaluation Data
  - Conduct a Pilot Test
  - Development Summary
- Implementation
  - Select, Prepare, and Schedule Learners
  - Select, Prepare, and Schedule Facilitator
  - Implementation Plan

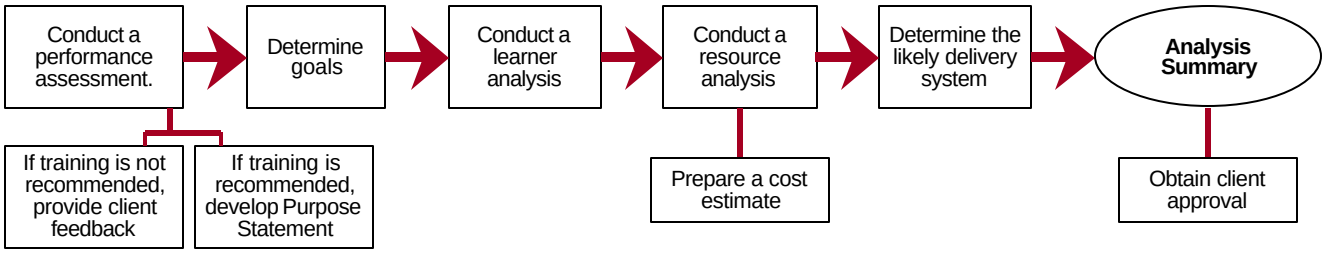
- Evaluation
  - Determine Quality Assurance Criteria
  - Select Evaluation Tools
  - Conduct Evaluations
  - Evaluation Plan

In addition, there is a section entitled, Tips That Don't Fit Elsewhere. Look here for general tips.

Analysis

Overview

Purpose: Identify the probable causes for a performance gap.



Conduct a Performance Assessment

- ☑ If you are designing training for a new topic or group of people, you will need to conduct more analysis and devote more effort to the design. However, don't use the ISD process as a substitute for your own knowledge!
- ☑ Learn the lingo before talking to anyone in the group. Save time by reading a job description from the group.
- ☑ If you can talk to only two people, talk to the manager of the group and one exemplary performer.
- ☑ Use email to gather information.
- ☑ If you're designing systems training or application training or policy training, sometimes the best source of performance-related information is the group the learners go to for support. For example, the internal technical resource center can be a great source of information for technical skills deficiencies. Another example: the audit department is a great source for errors made by processors.
- ☑ Focus on job performance. Keep asking, "What should it look like?" or "What should they be doing?"

Determine Goals

- ☑ Nail this element! Ask the manager what specifically she would like to see as a result of her staff attending training. Ask the manager how she would recognize the improved behavior.
- ☑ These are not YOUR goals!!! The goals should be written from the perspective of the learner and should begin with the phrase, "As a result of attending this training, the participant

should be able to…." Note: if the goals do not directly and immediately apply to the learner's job, rewrite them!

- ☑ "If you don't know where you're going, any road will do." Goals represent "where you're going!"

Conduct a Learner Analysis

- ☑ Talk to the manager.
- ☑ Avoid surveys; they typically tell you what people think you want to hear.
- ☑ Watch the people do their jobs.

Conduct a Resource Analysis

- ☑ Find support! Can't do Word? Find someone who can.
- ☑ Exchange services: you do something for someone and that person does something for you.
- ☑ Make friends with the management or support function personnel: HR, sales or services support, QC, etc. They analyze and contribute to the performance of the same audience you train. Often, they have models, insights, and/or relevant activities that will cause your audience to succeed or fail without training. They may have performance criteria, hiring models, compensation data that will provide insights into the importance of the "training content" to the audience, or will they can provide content directly, if asked. (Lynne Hayden, Salescape)
- ☑ Keep a list of professionals in your field. Contact these individuals from time to time so that you can contact them when you are in need of their expertise. We all need a helping hand from time to time, don't be afraid/uncomfortable asking others when you are stuck. (Pam Martin, Entelechy)

Determine the Likely Delivery System(s)

- ☑ Refer to the ***Media Selection Flowchart*** in Appendix B.
- ☑ Talk to the manager.
- ☑ Think simple – email, job aid.
- ☑ Think convenient (for them) – staff meeting, lunchtime.
- ☑ Think easy (for you).

Analysis Summary

☑ Prioritize by:

- Size of audience (fewer potential audience = less time devoted to the project; far-reaching, large numbers = more time devoted to the project)
- Importance of topic (safety and sales will require more time compared to less important topics such as organizational changes)
- When is the training needed (today vs. tomorrow)?
- Zero-based training (what would they do if you did nothing?)
- Availability of resources/support (the more help, the less you have to do)

☑ Be realistic – not conservative and not optimistic. How big is the problem, REALLY? What would happen if you did nothing?

☑ Know your client and the goals they are trying to reach. Some will sacrifice quality for time and/or cost. Other clients want the best quality and don't care how long it takes. Understanding your client's goals up front can cut down on the number of edits and make them more satisfied in the long run. (Pam Martin, Entelechy)

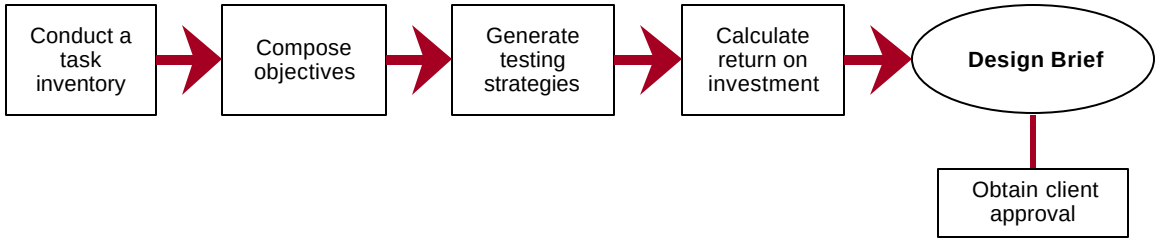
☑ Your job is to provide the "best" training. "Best" depends upon the client's needs and requirements. "Best" is a balance between instructional quality, time, delivery methodology, and cost (both design/development and implementation/delivery).

☑ Think as if you were your own training company. How could you – how WOULD you – cut corners without sacrificing the quality?

Design

Overview

Purpose: Verify the desired performances, the learning tasks, and the appropriate testing strategies.



Conduct a Task Inventory

- ☑ If you have reliable SMEs (exemplary performers or managers), have them provide you with the tasks that people need to perform, the skills they need to perform them, and the knowledge that supports their efforts.
- ☑ Even if you don't have SMEs to rely on, don't go nuts! Watch and document a couple of exemplary performers or talk to a manager. Most of the time, there are certain fairly obvious tasks that exemplary performers do that others don't; focus your attention on those tasks.
- ☑ Another opinion on task inventory: "An accurate and complete task analysis is, in my estimation, the key to effective and efficient training. Weaknesses in the task analysis can result in wasted time, wasted money, and poor worker performance. Task analysis is not the place to cut corners! Training programs that fail, usually have roots in erroneous or "fuzzily-worded" tasks and performance standards."
- ☑ It would certainly be nice to dictate prerequisites, but the real world doesn't usually work that way. Instead you are often working with a predefined audience. However, just because you can't dictate prerequisites doesn't mean that you can't do anything about them. Identify prerequisites (in terms of tasks or qualifications) and suggest ways participants can build their skills before training.

Compose Objectives

- ☑ DO go nuts here. Spend time on the performance objectives to make sure that everyone agrees that these are the things that are to result from the training.
- ☑ Make sure to use performance-based objectives – objectives that describe what learners should be able to do after the training. Ideally, on the job.

- ☑ For each objective, figure out exactly HOW you're going to tell whether your learners can demonstrate their achievement of that objective. (See Generate Testing Strategies below.)

Generate Testing Strategies

- ☑ DO go nuts here, too! In fact, compose the objectives AND the testing strategy at the same time. Sometimes the testing strategy will require that you modify your objectives.
- ☑ Make sure that your testing strategy matches your objectives. If an objective states that "participants should be able to calm an angry customer" then your testing strategy MUST include an opportunity for participants to demonstrate their skills in a fairly realistic environment. Having participants simply recite the four steps to calming a customer is NOT ENOUGH!!!
- ☑ Most jobs have some type of feedback sheet or quality check. These make great checklists for your training. If a checklist DOESN'T exist for the task, ask the manager/client to create one. This becomes your test/performance check. If the checklist doesn't exist and the manager/client won't or can't make one, make one for training and provide it to the manager/client to reinforce skills learned in training (and to win some brownie points).

Calculate Return on Investment

- ☑ Again, be realistic. Attributing a potential savings of $5M with a 1-hour time management class would probably be met with some healthy skepticism.
- ☑ Calculate the ROI of options (larger class sizes, WBT versus ILT versus manager-led training).
- ☑ Use Entelechy's *Return on Training Investment Calculator* to include all costs and possible return. Contact us at info@unlockit.com.

Design Brief

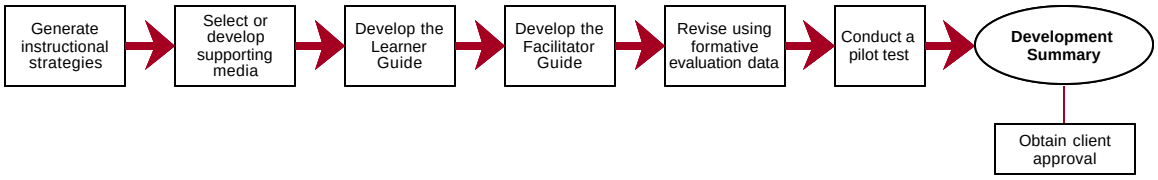
- ☑ Make your design brief/document as detailed as you can. It's faster and much easier to implement something once you have already done the major portion of the creative thinking. And, it's faster and of better quality to do the creative thinking at the design document phase. (Joanne Casino, Entelechy)
- ☑ DO NOT shortcut this document or the opportunity to discuss it with your client. Do not analyze or develop more until you've gotten input from the client or stakeholders. Doing so is likely a waste of time.
- ☑ The only exception to the above tip is that you may want to (or have to) provide a development timeline, which, according to ADDIE, is created in the Development phase. Clients and stakeholders typically want to see how long it will take to develop this training.

- ☑ Try to produce items for client sign-off that are part of the final product rather than "review-able stuff" only. That is, the less time you spend creating stuff that is "just for clients to review and sign-off", the better. Usually, this means less project documentation time and more time on final result. Also, it may mean additional, smaller reviews rather than 'really big deal' milestones. Get sign-offs along the way. (Lynne Hayden, Salescape)
- ☑ Don't be afraid to "throw your work over the fence". A fresh eye can save so much time. (Pam Martin, Entelechy)

Development

Overview

Purpose: Generate and validate the training materials.



Generate Instructional Strategies

☑ Sequence training based on some logical structure such as:

- Proceeding from what students know to what they do not know
- Proceeding from concrete experiences to abstract reasoning
- The logical or historical development of a subject
- Important themes or concepts
- Starting from unusual, novel or complex situations and working backwards towards understanding

☑ Use the ARCS model as a framework for incorporating motivational techniques throughout a lesson.

- Attention

  Capture learners' interest and stimulate an attitude of inquiry. For example: ask questions; use emotional or personal information; create a mental challenge; use human interest examples.

- Relevance

  Make the instruction relevant to the learners' needs and goals. Match the instruction to the learning styles and personal interests of the learners. Tie in the instruction to the learners' experience and help them to see the relevance.

- Confidence

  Build in learners a positive expectation of success. Make sure that the learning experience helps learners to display competence and success as a result of their efforts and abilities. It should be an achievable rather than overwhelming learning experience.

- Satisfaction

Encourage and support their intrinsic enjoyment of the learning experience, as well as providing extrinsic rewarding consequences for their successes. Also build a perception of fair treatment. Reinforce the learning by providing useful and fair feedback.

- ☑ "I create a storyboard of the major topics using post-it notes. This helps me visualize the whole course and I can move them around easily until the flow is the way I want it. Then I do the same thing for each major topic i.e., the sub-topics to support that topic. At the end I have the whole course laid out in the flow I want it and can 'see' it. Then I put it on paper." (George Cann, Oxford Health Plans)
- ☑ "Be aware of 'what's in it for me' – what is a student going to get out of the course, not just what do I want to tell them." (Nicole Davis, Nielsen Media Research)
- ☑ Pull in structure, exercises, or ideas from other trainings you have developed and then apply them to the new training. (Donna Iacopucci, Independent)
- ☑ Look for excellent examples that may relate to what you are doing in a parallel field (for example, if you are the ABC product instructional designer, look to the XYZ product curriculum for ideas, etc.) (Lynne Hayden, Salescape)
- ☑ Create games. Use formats that you're familiar with: Jeopardy and Bingo are great for information recall; Family Feud is great for opinions or ranking information (e.g., "What are the top four reasons employees leave the job?"); board games like Chutes and Ladders are good templates for following process and for decision-making.

Select or Develop Supporting Media

- ☑ Use examples of work completed or record actual calls in training to critique. Usually ANY sample contains elements of good and poor performance.
- ☑ Have a manager or exemplary performer create media samples for you.
- ☑ Build in more exercises and experiential things to fill the time and then base the lecture and learning points off of these exercises. (Donna Iacopucci, Independent)
- ☑ Involve the facilitator in the design and development phases. It's better to involve the instructor earlier rather than later.
- ☑ Find something similar to what you are trying to accomplish and start manipulating text/graphics from this starting point; it's faster than starting from scratch. (Pam Martin, Entelechy)
- ☑ Become your own producer. Tape record phone conversations of call center reps with callers; evaluate the calls in training. Create a quick-and-dirty videotape of employees role-playing; when you use the tape in training, evaluate for both good points and things that you might suggest doing differently.

Develop the Learner Guide

- ☑ NEVER start from scratch. Build off existing material as much as is possible and appropriate. Use the last learner guide you created as a basis for this learner guide; delete the stuff from the old guide that you don't need in this guide. Keep the front matter. Keep the section breaks. Keep the formatting. Not only will your guides improve over time, you will save time AND your learners will be able to use your guides more effectively.
- ☑ More white space is better than less white space.
- ☑ Teaching an application? Forget a Learner Guide; teach from the User Guide instead. Don't have a User Guide? Create one (or better yet, get the IT department to create one).
- ☑ Develop the learner guide AT THE SAME TIME as you develop your instructor presentation. You can:
  - Synchronize what students are learning with what you're teaching. Sounds goofy, but I've found that following the traditional "develop student materials first" method sometimes backfires since I have to make compromises when I look at the training from the instructor's point of view.
  - Take graphics from the PowerPoint presentation and embed them into the Word learner guide; this helps learners stay with you throughout the training.
- ☑ In fact, try using your PowerPoint presentation as the guide for developing the learner guide. Create a PowerPoint presentation with nothing but slide titles representing the content and sequence. Then create the learner's guide as you flesh out the instructor presentation.
- ☑ Get to know your tools. Word and PowerPoint are typically the tools of choice. Learn how to make tables. Learn how to use styles and section breaks. Use shortcut keys (e.g., CTRL+C = copy or SHIFT+CTRL+V = paste the format). Use search and replace for words, phrases, and even styles!
- ☑ Work that template! A good template is worth its weight in gold since you don't have to waste time designing styles. (Joanne Casino, Entelechy)
- ☑ Create and add to a Style Guide. Use the Style Guide to keep track of decisions you've made regarding such things as formatting (e.g., two spaces after a period or capitalize the first word in a bulleted item), word choice (e.g., "facilitator guide" as opposed to "instructor guide"), and other subjective choices you've made. Often we spend every project making the same decisions we made on previous projects. A Style Guide records your decisions so you don't waste time each project.
- ☑ If a format is going to be used repeatedly, have someone proof and edit the format prior to dropping in the text. This way the original format is proofed once – not multiple times and can save time in the final proofing/editing stage. (Marty Wilcox, Entelechy Quality Control and Production Manager)
- ☑ Save often. "Save As" a different name every so often. In case your file gets corrupted, you can revert to a previous version. I recommend using a format like FILENAME20020913 where the numbers represent the year, month, and day. This file was Practical ID 20020913,

Practical ID 20020914, etc. since I saved it as a different name every day before I worked on the file. At most, I might lose a day's worth of work.

- ☑ "Throw it over the wall" sooner than later. Don't wait until you're finished to get input and feedback. Use the draft of the learner guide and instructor presentation to solicit input (you're NOT looking for approval yet!) and ideas from the client.
- ☑ Divide and conquer: Share research, needs assessment, or other preparation work among multiple people. (Joanne Casino, Entelechy)
- ☑ Print off your materials and review them in a different venue. My favorite is to take them to the stationary bike at the gym. Forty-five minutes seems to iron out the kinks.
- ☑ Keep the objectives forefront while you're developing and reviewing. If you've included material that doesn't directly address the objective, get rid of the material. If you find that you need to add the material back in, the material MAY be required.
- ☑ Always have a resource file of graphics that you like, but don't currently have a use for. At a later time, when you get stuck looking for "just the right" graphic you have somewhere to go to get things rolling. (Pam Martin, Entelechy)

Develop the Facilitator Guide

- ☑ If you're developing a course that only you will deliver, simply make instructor notes in the Notes View of the PowerPoint presentation.
- ☑ Don't start from scratch. (See the tips under "Develop the Learner Guide" above.)
- ☑ Include a purpose statement for each point (slide or section); the purpose statement should remind you (or another instructor) just what you're trying to achieve with this point (or slide or section).
- ☑ Have the participants do more brainstorming or group work in class and then build from their key points. The Facilitator Guide would then only have to have key points for the instructor to bring out or link back. (Donna Iacopucci, Independent)

Revise Using Formative Evaluation Data

- ☑ Use a second set of eyes. Don't try to proofread your own work – find someone else who can read it quicker and pick up on the things that you won't because you are too close to it. (Joanne Casino, Entelechy)
- ☑ "Throw it over the wall" sooner than later. Don't wait until you're finished to get input and feedback. Use the draft of the learner guide and instructor presentation to solicit input (you're NOT looking for approval yet!) and ideas from the client.
- ☑ Ask feedback and input from more people rather than a few people. People get busy and reviewing your material may be low on their priority list. Having more people ensures that you will get some feedback.
- ☑ Avoid working on the material being reviewed. Go work on something else.

Conduct a Pilot Test

- ☑ Necessary for big rollouts; not necessary for one-off classes.
- ☑ Consider a walk-through instead of a pilot. A walkthrough includes the client, stakeholders, and others who are typically not the target audience. You'll miss the learner perspective (which can be critical) but you gain lots of buy-in.
- ☑ Be sure to share the timeline with your production department to ensure they are aware of production deadlines and can plan accordingly. (Marty Wilcox, Entelechy Quality Control and Production Manager)

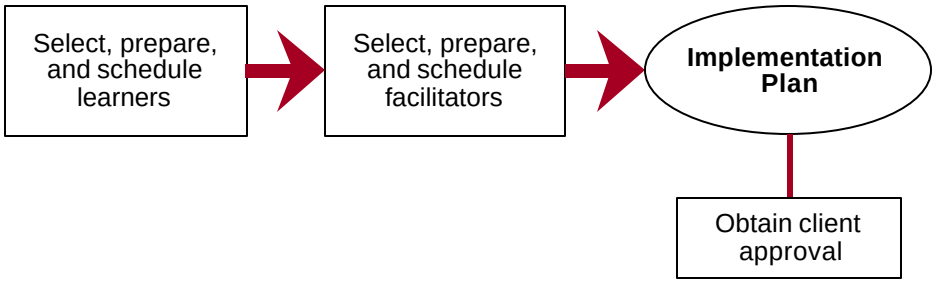
Development Summary

- ☑ This is a project plan. Make a plan and work it. Keep it simple – emails work just fine.
- ☑ Include only those project plan steps that are absolutely necessary. I recommend NOT using a plan template since templates may include lots of unnecessary steps for this particular project; you can certainly refer to a plan template to make sure that you didn't forget an important step.
- ☑ Communicate often. Make sure those who either are contributing or can contribute to your project's success know your needs, deadlines, issues, resources, successes and shortcomings. (Nicole Davis, Nielsen Media Research)

Implementation

Overview

Purpose: Prepare the training environment and conduct the training.



Select, Prepare, and Schedule Learners

☑ It is often beneficial to communicate with participants before the training by phone call, memo, questionnaire, or combination. The purpose of the communication is threefold: 1) to welcome the participant and begin establishing rapport; 2) to set expectations; and 3) to gather information about the participant.

- You can establish rapport by:
  - Identifying the value that participants can expect to get from the training (and the value that other participants have gotten from attending the training).
  - Addressing concerns participants might have about the training.
  - Sharing information about yourself, the training site, and other people available to the participant before, during, and after the training.
- Expectations that can be set ahead of the training include:
  - Prerequisites including experience, prior training, and job title
  - Start and end times
  - Appropriate dress
  - Amount of work/effort required in the training (including homework)
  - Handling of phone calls and other business correspondence

Select, Prepare, and Schedule Facilitators

- ☑ Select the best available facilitator (duh!). Choose a facilitator who will deliver what you've designed and developed and NOT what they may feel comfortable with.
- ☑ Involve the selected facilitator in the design and development phases.
- ☑ Regardless of the capability of the facilitator, walk through the training materials and provide the instructor with the intent of each section, the steps of each of the learning activities, and insights regarding "ah-ha's" or "gotcha's".

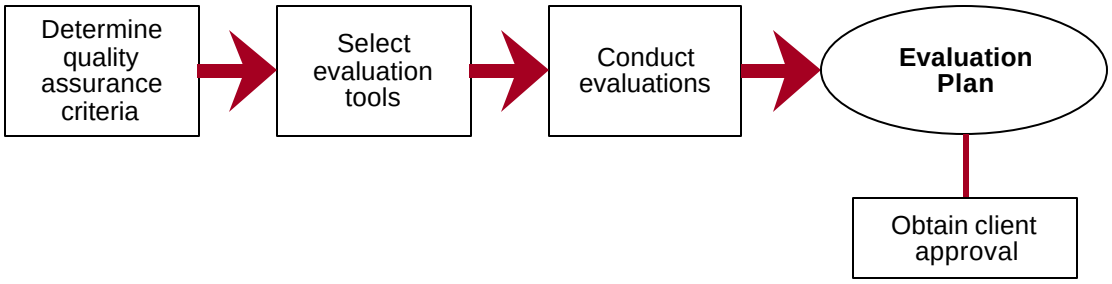
Implementation Plan

- ☑ Prior to the Implementation phase, be sure to share the timeline with your production department to ensure they are aware of deadlines and can plan accordingly. (Marty Wilcox, Entelechy Quality Control and Production Manager)
- ☑ If printing of learning materials does not take place in-house, the production department should take advantage of new technology that allows them to create digital files and send them electronically to printing houses (i.e., Kinko's). The output of text & graphics is crisp and clear, the turnaround time is quicker, and many times assembly of final materials – such as binders with covers, tabs, and inserted documentation – can be arranged at the print house at a price cheaper than in-house labor. Materials delivered back to your site are often an inexpensive option or included in the price. You never have to leave your desk! (Marty Wilcox, Entelechy Quality Control and Production Manager)

Evaluation

Overview

Purpose: Assess the quality of the instructional products and processes both before and after implementation.



Determine Quality Assurance Criteria

- ☑ If the training is going to be used infrequently, avoid this step.
- ☑ Don't forget follow up. To develop a deliverable that is superior to the last, follow up and find out what works and doesn't work. Be prepared to change what doesn't work. (Nicole Davis, Nielsen Media Research)

Select Evaluation Tools

- ☑ The simplest and one of the most effective post-training evaluation tools is an interview with the learners' manager(s).
- ☑ Want to find out what the learners thought? Wait two to four weeks before following up. Only after two weeks will the residual value of the training be apparent; what works will be working and what doesn't won't be used or attempted. After four weeks, learners may forget what they learned in the training (they may be using your techniques, but they may simply forget that they came from you – they are performing at the unconscious competent level).
- ☑ Use email.

Conduct Evaluations

- ☑ Ask open-ended questions such as: "What two things do you use most from the training?" and "What do you wish we would have covered?"

Additional Evaluation Considerations

☑ Okay, prepare for heretic speak! I want to talk about ROI. Over the past decade, companies have been screaming for training to demonstrate ROI. And in theory, it's a reasonable and worthy request. In fact, we as trainers should be the first to link training to performance and have a sense for the bottom line impact of our training.

However, I suggest that all we can get is "a sense". I believe that it is virtually impossible to link training with true bottom line impact. If it's not impossible, it is definitely cost prohibitive. Here's why.

Skills and knowledge are elements that impact performance. Other elements that impact performance include recognition/motivation, clear expectations and feedback, job design, and information/tools. A simple example, we can provide superior training on using Word, but if the learner doesn't have a computer (a tool) on the job, performance may suffer. Is training to blame?

Here's a more complex – and realistic – example since even performance – how capable we are to do a certain task – is not the only factor determining ROI. Learners attend a "product dump" – a "training session" where the instructor/sleep therapist droned on for hours about the product's features, speeds, and feeds. A new world record was set: 155 overheads in one hour. The product sold like hotcakes – in fact the product practically sold itself! Can/should training take credit for the sales? How about crediting the engineers who built the product or the marketers who priced and advertised the product? How about the economy that created an environment conducive to sales of this product?

The fact is that without a control group – a group of people with backgrounds, capabilities, and work situations similar to those in the training – it is impossible to isolate all of the variables that impact ROI.

Does that mean that we're off the hook? Absolutely not. In fact, I suggest that it is even MORE important that we look at business needs, performance required to achieve those business needs, and how training can help address gaps in performance. As trainers, we must link training to performance to business outcomes FIRST and CONTINUOUSLY. For more information on this subject, refer to Entelechy's Approach to Performance Consulting at http://unlockit.com/eguides.htm.

Tips That Don't Fit Elsewhere

Some tips just don't fit neatly into one of the design, development, or implementation categories. And they're too good to throw away! Listed below are a few such tips.

☑ Save the best things you do twice:

- In the complete project folder (major landmarks and the final production items)
- As the best examples to put in specific folders, such as content for audience, type of activity (case study, game, etc.), performance models, etc. That way, you can review all the work you've ever created (or you've ever seen) for a specific purpose, or use a whole portfolio for "pilfering" or sharing. Keep things electronically whenever possible and reuse, reuse, reuse (forms, content, document formatting, etc.) (Lynne Hayden, Salescape)

☑ Focus your work so that you don't have to try to be everything to everyone. Determine, as well as you can, whether to be an ID specialist/content generalist or a content specialist/ID generalist. Then, you can keep track of things that are primarily part of your specialty. (Lynne Hayden, Salescape)

☑ Communicate often. Make sure those who either are contributing or can contribute to your project's success know your needs, deadlines, issues, resources, successes, and shortcomings. (Nicole Davis, Nielsen Media Research)

☑ Thank participants and co-developers for their support. (Nicole Davis, Nielsen Media Research)

☑ And then thank their bosses!

Answers to Specific Questions

How do we speed up the legal review process?

- ☑ Make friends with those responsible for the process.
- ☑ Give Legal a heads up on when your stuff is coming through.
- ☑ Provide your materials in a manner they would like. Don't know the manner/format? Ask.
- ☑ Plan work for this period. Perhaps start a new project….

How do we best find and get cooperation from SMEs?

- ☑ Get the manager/client/stakeholder to identify these upfront in the initial meeting. The best ones will be identified initially whereas the most available will be identified later.
- ☑ Have the manager/client/stakeholder make the initial contact to the SME on your behalf (actually on the project's behalf).
- ☑ When you first meet with the SME, outline your expectations/needs regarding the SME's level and length of involvement.
- ☑ Be flexible when you can. Negotiate.
- ☑ Give the SME choices. "Would Friday or Monday work better for you?" Get them to come up with a timeline that meets their schedule.
- ☑ Show how you are doing everything you can to minimize the impact your requests have on the SME.
- ☑ Suck up!! Publicly acknowledge the support you're getting from the SME.
- ☑ Not getting the level of support from the SME? Talk to the manager/client/stakeholder and enlist their insight. Don't blame the SME. "John, I'm having trouble connecting with Roberta. Perhaps you could give me some ideas…" works better than "Roberta's not cooperating at all…."
- ☑ Be friendly.
- ☑ Tune to WIIFM (What's In It For Me). You'll often find out that there is little in the way of tangible incentive for the SME to help.
- ☑ Be reasonable about your expectations.
- ☑ Adapt your communication style to that of the SME. If they are rushed and busy, adopt a concise, brief communication style.
- ☑ Ask the SME throughout the project for feedback on how it's going. Are you giving enough direction?

- ☑ Thank the SME for their significant contribution. Then send an email to the manager/client/stakeholder (ccing the SME) praising the efforts and contributions of the SME. Then send one to the SME's manager (if it's someone other than the client/manager/stakeholder. This will ensure that you have a SME for your next project.

How do I deal with the constant interruptions preventing me from working?

- ☑ Find a place away from the interruptions to design and develop. Use a conference room for doing your design; it's private and has sufficient table and wall space to work.
- ☑ Schedule your design and development time. Much as you would schedule time for attending a meeting, block off that time on your calendar/daytimer, and plan other activities around that time. During the "development meeting" that you planned for yourself, don't answer calls or respond to emails.
- ☑ Sometimes you can be twice as productive if you move to another venue. For example, I take a hardcopy draft of my facilitator guide to the health club where, with red pen in hand and water bottle at the ready, I ride a stationary bike and edit and sweat. (Note: I tried this once with a regular bicycle outside with much less success….)
- ☑ Shift your perspective. Often, we confuse urgent with important. Urgent things – the telephone ringing or Outlook announcing the arrival of another email – are often not very important. At the same time, developing a participant guide usually is not urgent because it's due next week not now, but is very important. At the beginning of the day, figure out what's IMPORTANT and focus your attention there.

How do we get – and maintain – consensus on what's needed?

- ☑ Don't try to get consensus on everything right away. The project is too undefined and everyone has his or her own ideas for consensus to be reached. You will spend more time arguing about stuff that will mean nothing down the road.
- ☑ Have a firm plan going into the initial meeting. For example, I usually like the initial meeting to include discussion, brainstorming, and input, NOT DECISION MAKING. I then say that I will put together a strawman/draft of what we discussed for everyone's review. In the strawman/draft, I may propose suggested ideas and next steps. I've found that people like/need to defend their positions in meetings and that it takes a very skilled facilitator and a receptive group to get beyond personal agendas and biases.
- ☑ Take and keep control of the project. S/he who controls the note taking and documentation controls the project. See the tip above.
- ☑ Document and get buy-in at each step of the instructional design process. Refer to the ADDIE process (or whatever process you use) for the documentation resulting from each step. Note: I like to get "public" buy-in in the form of a verbal "yes, I approve" at a meeting

or a written "yes, I approve" in an email. That way, people are less likely to renege on their decision AND you can call them on it if they do: "Bob, frankly, I'm a bit confused since you had approved the design last week; it sounds like your changing your mind."

- ☑ Be prepared to discuss the impact of changes. Changes impact deliverables, training dates, scheduled resources, SME input, etc. They often mean more meetings. The cost of changes can be significant.
- ☑ Be open to needed changes. The only thing worse than a change made after consensus agreement is a necessary change that wasn't made. For more on this "groupthink," refer to The Abilene Paradox.
- ☑ Listen objectively to – even welcome – disagreement; it's usually there for a reason.
- ☑ Work the change into your existing structure. As the cliché goes, "Don't throw the baby out with the bathwater."

When do you stop designing and call it a day?

- ☑ Many of the suggestions above will also apply here, especially the tip to "document and get buy-in at each step of the instructional design process. Refer to the ADDIE process (or whatever process you use) for the documentation resulting from each step."
- ☑ In rapid prototyping, you design and develop pieces as you go along. When you put something on paper, make it as close to the finished product as possible. This will save you development time later AND will reduce misunderstandings.
- ☑ In truth, training design never stops since it is an iterative process of design, implement, evaluation, and modify/redesign. Of course, you may not want to spend the rest of your life maintaining a course (although one of my first jobs as an instructional designer was to maintain one of the company's new hire sales training programs!) Therefore, treat redesign/maintenance as you would any training project: document the needs and prioritize.

How do you save time securing pertinent materials/content?

- ☑ The best materials come from the manager/client, the SMEs, and the exemplary performers. During your initial meeting with the manager/client, discuss the types of materials you may need – case study info, forms used on the job, examples of forms completed as needed, forms with mistakes, samples of phone conversations, etc. – that you can use to further define the performance gap and that can be used in the training.
- ☑ Do the same thing with the SME and the exemplary performer. Have them work on your behalf to find the best materials.
- ☑ If you're looking for content information, the Internet holds a treasure chest full of good stuff. My favorite search engine is Google (www.google.com) since you can search within a search. (Remember, most material is copyrighted.)
- ☑ If you're looking for great explanations for how stuff works, try www.howstuffworks.com. They have simple explanations for sometimes complex topics such as computers, the

Internet, and electronics. Wanna know how a router works? Wanna know how hoverboards will work in the future? Wanna know how freeze drying works? Wanna know more about the Islamic religion? Wanna know about toilet alternatives, solar heat, atoms, or space shuttles? The topics are diverse and extensive. (Remember, most material is copyrighted.)

- ☑ If you're looking for programs to jumpstart your skills training, I humbly suggest Entelechy's website at www.unlockit.com. You can purchase a complete training module for as little as $179 (for a two-hour module). You get EVERYTHING – facilitator guide and facilitator presentation, participant guide, handouts, job aids – AND you get the unlimited authorization to modify and use these materials in your company or organization without paying another nickel! Entelechy has over 40 customizable modules in the areas of management, sales, customer service, and training.
- ☑ Use the same course for different clients by:
  - Providing the existing course information – goals, objectives, activities – to a client as part of the needs analysis and design steps. Ask for their input and use the discussion to determine THEIR needs.
  - Modifying the course based on identified and agreed-to changes.

How do you maintain continuity in the design and development process?

- ☑ You are the constant in the never-ending parade of characters in the project. Expect to spend some of your time educating and guiding.
- ☑ The documents you create at each step of the design/development process become tools for new project members to get up to speed quickly. Use them to teach new project members.
- ☑ Set expectations early and often. Many of the "gotchas" are unvoiced expectations about communication (How often? How quickly do I respond?), reviews (What do I review? When is my review due? In what form?), meetings, and direction (What influence do I have at this point in the project? What's my role?).
- ☑ "When in charge, take charge."

How do you identify the right resources up front?

- ☑ During your initial meeting with the client/manager/stakeholder, discuss the need for supporting human resources – SMEs, exemplary performers, manager(s) – and other resources – forms, work samples, recordings – that you will need to put together an effective training program. Strike while the iron/priority is hot in the stakeholder's mind; if you request these resources later, the priority may not be there.
- ☑ Budget may limit you from using outside resources but often outside resources can be cost effective since they have a specific expertise that is cheaper to buy than to develop internally.

- ☑ Internal resources will be required for policy training, proprietary application training, and internal message training (i.e., company mission statement to new hires).
- ☑ Consider outside resources for any non-proprietary topic such as skills training, computer application training, and HR-topics such as sexual harassment. Remember, you can always ask for ideas from an external provider without incurring costs.

How do you determine priorities among competing priorities?

- ☑ First, if you have many projects competing for your time, step back and enjoy the fact that you are obviously doing something right! A much worse situation would be if NO ONE was competing for your time and talent!
- ☑ Prioritize by:
  - Size of audience (fewer potential audience = less time devoted to the project; far-reaching, large numbers = more time devoted to the project)
  - Importance of topic (safety and sales will require more time compared to less important topics such as organizational changes)
  - When is the training needed (today vs. tomorrow)?
  - Zero-based training (what would they do if you did nothing?)
  - Availability of resources/support (the more help, the less you have to do)
- ☑ Ask your supervisor for advice (although I recommend that you do the prioritization and rationalization first and then make a recommendation to your supervisor).

How do I identify "what they need" versus "what they want"?

- ☑ You get to "what they need" by first agreeing to "what they want". Let's say that the client says, "I want an outdoor ropes course to motivate my staff." You say, "Okay. Ropes courses CAN help teams work together more effectively. In addition, would you be interested in other ways to help your team work together more effectively?"

  The point is that if you argue with the client saying that they don't really need what they think they want, they will come up with a hundred reasons why they do in fact need what they say they want. By agreeing with what they want AND suggesting that there may be alternatives to reach their goal, you'll be greasing the skids to the best solution.
- ☑ In my 25 years of experience, I've grown to appreciate the fact that managers/clients tend to know a bit more about their business than I do. My perspective after years of thinking "I know best" is now "I know very little."
- ☑ Clients who know what they want are infinitely easier to work with than clients who don't.

- ☑ Educate the client/manager on the importance of identifying the performance gap and the reasons for the gap. The client/manager wants to be certain that whatever course of action we decide upon will be viewed as the best we could have chosen.
- ☑ Educate the client/manager on the elements impacting performance (see Improving Training/Determine the Performance Gap at Entelechy's website: http://unlockit.com/improve-perform4.htm).

Appendix A:

A Glossary of ID Terms

Ability Grouping: Arrangement whereby students are assigned to groups on the basis of aptitude testing.

Accelerated Learning: Combining adult learning theory and whole brain learning theory in the learning environment to achieve a faster learning rate.

Action Learning: An exercise most often completed between instructor-led training episodes in which learners apply their new knowledge or skills to a real or case study situation following guidelines and directions established during the training episode.

ADDIE: A conceptual and iterative application model for instructional systems design; the components include: Analysis, Design, Development, Implementation, and Evaluation.

Affective Domain: The division of Bloom's taxonomy of educational objectives that references those objectives and test items demonstrating interest, appreciation, attitudes, values, and/or psychological adjustment.

Analysis: The first phase of the ADDIE instructional systems design process; its purpose is to identify the probable causes for the absence of performance and recommend a solution.

Analysis Summary: The document completed at the conclusion of the Analysis phase documenting your research and describing your findings, conclusions and recommendations. Components include: a statement describing the cause of the performance discrepancy and the potential value added for training, a purpose statement for the training project, a list of the instructional goals, a learner audience profile, a list of resources you will require, and recommended training delivery system options including cost estimates for each option.

Andragogy: From the Greek words "anere", for adult and "agogus", the art and science of helping students learn. Widely used by adult educators to describe the theory of adult learning. The term offers an alternative to pedagogy. The andragogic model asks that five issues be considered and addressed in formal learning:

- Letting learners know why something is important to learn - The need to know.
- Showing learners how to direct themselves through information - The need to be self directing.
- Relating the topic to the learner's experiences - Greater volume and quality of experience.
- People will not learn until ready and motivated to learn - Readiness to learn.
- A need to have a life centered, task centered, or problem centered orientation - Often this requires helping them overcome inhibitions, behaviors, and beliefs about learning.

Asynchronous Learning: Any learning event that is delivered after the original live event. Also used to indicate a learning event where the interaction is delayed over time, such as a correspondence course.

Assessment: Essentially a measurement process of the learning that has either taken place or can take place. Usually measured against stated learning outcomes:

- Predictive assessment attempts to measure what the learner might achieve given suitable training.
- Attainment assessment attempts to measure what the learner knows or can do, and is usually related to the syllabus of a course the learner has followed.

Attitudes: Personal choice and human modeling are manifestations of attitudes.

Authoring: A structured approach to developing all elements of a unit of instruction.

Authoring Tool: Software application used to produce media-based learning content.

Baseline: 1) Valid and reliable information about the intended learner population used to ascertain differences between learners' performances before and after instruction. 2) A set of measurements (metrics) that seek to establish the current starting level of a performance. These measurements are usually established before implementing improvement activities.

Behavior: An action that is an overt, observable, measurable performance**.**

Behaviorism: Belief that learning results in a change in the learner's behavior. The focus of behaviorists is on the outputs of the learning process. The study of learning only through the examination and analysis of objectively observable and quantifiable behavioral events, in contrast with subjective mental states.

Bloom's Taxonomy: A taxonomic classification of cognitive, affective and psychomotor behaviors for the purposes of test design invented by Benjamin Bloom and his colleagues. Learning is broken down into three domains:

- Affective: The manner in which we deal with things emotionally - our feelings, values, appreciation, enthusiasms, motivations, and attitudes.
- Cognitive: The recall or recognition of specific facts, procedures, concepts, and universals that serve in the development of intellectual abilities and skills.
- Psychomotor: Involves physical movement, coordination, and use of motor skill areas.

Branching: An instructional technique, usually in the form of programmed text, in which the learner's next step of instruction is determined by her response to a previous step. Two or more directions in a program path can go from a decision point.

Broadcast: Method of transferring learning content to many learners simultaneously.

Case Study: A printed description of a problem situation that contains enough detail to enable the learners to recommend a solution. The learners encounter a real-life situation under the guidance of an instructor or computer in order to achieve an instructional objective. Control of the discussion comes through by the amount of the detail provided.

Certification: Program and process where a learner completes prescribed training and passes an assessment with a minimum acceptable score. To increase validity and assure authentication, the certification process should be proctored by an independent agent.

Classroom Model: One type of model in which ISD is commonly applied. The model assumes that the context includes a few hours of classroom instruction as seen in schools where the instructor is often the developer of the instruction. Classroom models usually outline only a few ISD functions and offer instructors a general road map to follow.

Coach: The coach's overall role is to help the team accomplish their given tasks by answering questions and offering advice and guidance on how to approach a given situation using the Instructional Systems Design methodology.

Classroom Training: Any instructional or training technique that utilizes a classroom environment.

Cognitive: From the Latin cogito; "I think". The mental processes of perception, memory, judgment, and reasoning. Cognitive also refers to attempts to identify a perspective or theory in contrast to emphasizing observable behavior.

Cognitive Domain: Involves mental processes. The Taxonomy of categories arranged in ascending order of difficulty are:

- Knowledge: Recognition and recall of information.
- Comprehension: Interprets, translates or summarizes given information.
- Application: Uses information in a situation different from original learning context.
- Analysis: Separates wholes into parts until relationships are clear.
- Synthesis: Combines elements to form new entity from the original one.
- Evaluation: Involves acts of decision-making based on criteria or rationale.

Collaborative Learning: A more radical departure from "cooperative learning". It involves learners working together in small groups to develop their own answer through interaction and reaching consensus, not necessarily a known answer. Monitoring the groups or correcting "wrong" impressions is not the role of the trainer since there is no authority on what the answer should be.

Competency: 1) Areas of personal capability that enable people to perform successfully in their jobs by completing tasks effectively. A competency can be knowledge, attitudes, skills, values, or personal values. Competency can be acquired through talent, experience, or training. 2) Competency comprises the specification of knowledge and skill and the application of that knowledge and skill to the standard of performance required in employment.

Competency-Based Instruction: Instruction that is organized around a set of learning objectives based upon the knowledge, skills and attitudes required to perform a set of skills called competencies. Evaluation of student success is based on competent performance of the skills. Normative measurement is specifically excluded from competency-based instruction.

Computer-Based Training (CBT): Interactive instructional experience between a computer and a learner in which the computer provides the majority of the stimulus and the learner responds, resulting in progress toward increased skills or knowledge. Has a

more complicated branching program of mediation and answering than Computer-Assisted Instruction (CAI). Now an all-encompassing term used to describe any computer-delivered training including CD-ROM and the World Wide Web.

Concept: A mental picture of a group of things that have common characteristics. A generalization is a person's idea of the relationships between two or more concepts. Concepts represent a group of solid objects, such as an airplane or book; or abstract ideas such as leadership and honesty. A concept is an idea about a group of things. A concept involves thinking about what it is that makes those things belong to that one group.

Concurrent Engineering: An ISD application model first used in industrial engineering that refers to direct involvement of all stakeholders in all stages of the process.

Condition: The component of an objective that describes the situation, environment, or limitations in which the learner must exhibit the specified behavior.

Constructivism: School of human learning which believes in the need to identify current learning prior to constructing new meaning. Knowledge is seen as a mental construct that is built on and added to. Learners create an image of what the world is like and how it operates and they adapt and transform their understanding of new experiences in light of what they already "know". This theory of learning has consequences for teaching and learning strategies. It means that trainers must recognize how a learner already sees the world, and how that learner believes it to operate. New information presented to the learner will be modified by what the learner already knows and believes. By starting 'where the learner is at', that is, engaging prior knowledge with present learning, the trainer assists the students to build on her understanding of the world and its workings.

Content Analysis: Content analysis is a procedure that, when applied to an instructional goal, results in the identification of the relevant knowledge, skills and procedures required for a learner to achieve the goal.

Content Resources: Content resources include existing course material, existing videos, etc. These pre-existing resources may be available that contain valuable content. They could be used in one of the following ways, such as reference for content, as reference for learning strategies, parts used in the training without alteration, parts used for illustration or examples only.

Cost-benefit Analysis (CBA): A technique designed to assist decision-makers in identifying a preferred choice among possible alternatives.

Criterion: The standard by which something is measured. In training, the task or learning objective standard is the measure of student performance. In test validation, it is the standard against which test instruments are correlated to indicate the accuracy with which they predict human performance in some specific area. In evaluation it is the measure used to determine the adequacy of a product, process, or behavior.

Criterion-Referenced Test: Criterion-referenced test is the type of test that compares the performance of a student with the degree to which the objectives were achieved. It included pre-test and post-test.

Criterion Referenced Instruction: Testing of the objectives as a learner progresses through the course of instruction. Learners pass or fail depending upon their attainment of the objectives and NOT in accordance with their rank or standing among peers.

Critical Incident Technique: A methodology of task analysis which determines the tasks to be included in instruction. Experts identify the critical job incidents and their products. Incidents are edited for redundancy, grouped into similar tasks, and then classified as positive or negative incidents. The incidents are summarized and then validated by the experts for completeness. This is a useful means for obtaining a list of relevant, real-world tasks to be included in instruction.

Cross-Training: Providing training in several different areas or functions. This provides backup workers when the primary workers are unavailable.

Cue: A prompt that signals performance is needed. An initiating cue is a signal to begin performing a task or task performance step. An internal cue is a signal to go from one element of a task to another. A terminating cue indicates task completion.

Curriculum: The aggregate of courses of study given in a learning environment. The courses are arranged in a sequence to make learning a subject easier. In schools, a curriculum spans several grades, for example, the math curriculum. In business, it can run for days, weeks, months, or years. Learners enter it at various points depending on their job experience and the needs of the business.

Debriefing: Debriefing is the process of helping people reflect on their experiences to develop meaningful learning. The purpose of a debriefing session is to gather oral feedback from test participants. A designer or an evaluation professional will write the debriefing question. During the debriefing session, make sure that all comments are captured and that discussions stay focused and relevant.

Deliverables: Any measurable, tangible, verifiable output that must be produced to complete the project or a training course.

Delivery System: Termed used to describe the means by which instruction will be provided to learners. Includes instructor-led instruction, distance education, computer-based instruction, web-based instruction, and self-instructional materials.

Design: The second phase of the ADDIE instructional systems design process; its purpose is to verify the learning tasks, performance objectives, and testing strategies.

Design Brief: The document completed at the conclusion of the Design phase showing a detailed overview of the training. Components included are: a sequenced list of learning tasks; a sequenced list of performance (learning) objectives; a list of testing strategies, a summary of benefits derived from the training (forecast ROI in some cases).

Design Review: A technique for evaluating a proposed design to ensure that:

- Adequate resources are available to meet time deadlines.
- It will work successfully.
- It can be built within a reasonable cost.
- It meets the organization's needs.

Development: 1) The third phase of the ADDIE instructional systems design process; its purpose is to generate and validate the training materials. 2) Training people to acquire new horizons, technologies, or viewpoints. It enables leaders to guide their organizations onto new expectations by being proactive rather than reactive. It enables workers to create better products, faster services, and more competitive organizations. It is learning for growth of the individual, but not related to a specific present or future job.

Dick and Carey (Walter Dick and Lou Carey): Authors of *The Systematic Design of Instruction*, the book that outlays an instructional systems design model that has become one of the most frequently utilized ISD models in the field.

Discovery Learning: Learning without a teacher; usually in a controlled (i.e. pre-designed) set-up, and under supervision.

Discrimination: The ability to choose between two closely related responses to a specific stimulus.

Distance Learning: (1) The use of any media for self-study. (2) A telecommunications-based instructional system evolved from the open learning movement used to overcome geographical "place-based" learning. (3) In its most common historical form, this refers to a broadcast of a lecture to distant locations, usually through video presentations.

Distributed Learning: Students take courses from a variety of sources (and delivery modes) to customize a program of study. Often is used synonymously with online learning.

e-Learning: Covers a wide set of applications and processes such as web-based learning, computer-based learning, virtual classrooms, and digital collaboration. It includes the delivery of content via Internet, intranet/extranet, audio and videotape, satellite, and CD-ROM. However, many organizations only consider it as a network-enabled transfer of skills and knowledge.

Electronic Performance Support System (EPSS): Applications designed to run simultaneously with other applications or embedded within other applications that provide support for the user in accomplishing specific tasks. An EPSS may provide needed information, present job aids, and deliver just-in-time, context-sensitive training on demand. A Web-based performance support system (WBPSS) is an EPSS which uses Web technology to deliver support in an enterprise environment.

Embedded Tests: It is one of the test strategies. Opportunities for students to demonstrate their skills in meeting objectives may be built into the training itself. This type of test is called an Embedded Test.

Entry Behaviors: Specific competencies or skills a learner must have mastered before entering a given instructional activity.

Entry Behavior Test Item: Criterion-referenced test items designed to measure skills identified as necessary perquisites to beginning a specific course of instruction. Items are typically included in a pretest.

Evaluation: The fifth phase of the ADDIE instructional systems design process; its purpose is to assess the quality of the training materials prior to and after implementation and the ISD procedures used to generate the instructional products.

Evaluation Report: The deliverable for the Evaluation phase of ADDIE; consists of two parts, the plan for collecting evaluation data and the summary of the evaluation data results.

Experiential Learning: A learning activity having a behavioral-based hierarchy that allows the student to experience and practice job related tasks and functions during a training session.

Facilitator: A person who makes it easier for learners to learn by attempting to discover what a learner is interested in knowing, and then determines the best way to make that information available to the learner by providing the knowledge, systems, or materials which enable the learner to perform a task more effectively. This is done by listening, asking questions, providing ideas, suggesting alternatives, and identifying possible resources.

Facilitator Guide: The print resource that is used by the facilitator to lead the instruction. Incorporates all aspects of analysis and design into its development, making it the primary vehicle to house all facets of the instruction: instructional strategies, testing strategies, learning objectives, content, pacing, timing, introductions, closure, transitions, and reviews.

Facilitator Plan: The portion of the Implementation Plan that describes how the facilitators will be selected and prepared to lead the training event; includes the following components: identification, schedule, preparation (train-the-trainer).

Feedback: Providing learners with information about the nature of an action and its result in relation to some criterion of acceptability. It provides the flow of information back to the learner so that actual performance can be compared with planned performance. Feedback can be positive, negative, or neutral. Feedback is almost always considered external while reinforcement can be external or intrinsic (i.e., generated by the individual).

Field Trial: The third stage in formative evaluation, referring to the evaluation of the program or product in the setting in which it is intended to be used. Also, the second phase of summative evaluation.

Five Levels of Evaluation: Jack J. Phillips' descriptive model for evaluating the effectiveness of training. Includes: Level 1: Reaction and Planned Action, Level 2: Learning, Level 3: Job Application, Level 4: Business Results, Level 5: Return on Investment.

Flowcharting: Procedure for identifying and graphically representing the sequential and alternative relationships among processes and decision points relevant to completing a project.

Formative Evaluation: The process of collecting data that can be used to *revise* the instruction *before implementation*, thus making the instruction more effective. A pilot test is an example of Formative Evaluation.

Gagne's Nine Events of Instruction: A method for organizing instructional strategies within the lesson designed by Professor of Instructional Design, R.M. Gagne. The *Nine Events of Instruction* include: Gain Attention, Inform Learners of the Objectives, Stimulate Recall of Prior Learning, Present the Stimulus (Content), Provide Learner Guidance, Elicit Performance, Provide Feedback, Assess Performance, Enhance Retention and Transfer (Closure).

Gaming: A technique in which the student is presented situations involving choice and risks. The choices and the consequences resemble real-life situations, and the players are reinforced for various decisions. Gaming is typically an enjoyable learning method for the student.

Group-based Instruction: The use of learning activities and materials designed to be used in a collective fashion with a group of learners; interactive, group-paced instruction.

Hierarchical Analysis: A technique used with goals in the intellectual skills domain to identify the critical subordinate skills needed to achieve the goal, and their interrelationships. For each subordinate skill in the analysis, this involves asking, *What must the student know how to do in order to learn the specific subskills being considered?*

Human Resources: Human resources include facilitators, coaches/manager support, manager contact, and subject matter experts. Human resources impact both the development and implementation of the training.

ID Model: A graphic representation of a systematic approach. Designed to facilitate efficient and effective development of instruction.

ILT: Instructor Led Training.

Implementation: The fourth phase of the ADDIE instructional systems design process; its purpose is to conduct the training.

Implementation Plan: The deliverable for the Implementation Phase consisting of the Learner Plan which is used to identify, and prepare the learners to participate in the instruction and the Facilitator Plan which is used to identify and prepare the facilitators to facilitate the instruction.

Individualized Instruction: The use, by students, of systematically designed learning activities and materials specifically chosen to suit their individual interests, abilities, and experience. Such instruction is usually self-paced.

Instruction: Instruction is the delivery of information and activities that facilitate learner's attainment of intended learning goals.

Instructional Goals: Brief statements describing the *terminal* tasks those learners will perform as a result of the training. Note that they describe performance and *do not* specify the criterion (standards) for the performance or conditions under which the performance will be demonstrated.

Instructional Design: Instructional design refers to the systematic process of translating principles of teaching and learning into plans for instructional materials and activities.

Instructional Designer (Instructional Developer or ID): This is the person who performs consulting and development chores necessary to create instructional materials. ID responsibilities typically include:

> Gathers and analyzes information about content and skills. Determines performance objectives based on the results of information gathered. Writes the blueprint and draft materials. Works with media people to assure that all-master materials adhere to the design of the course. Organizes the test session and rehearses the instructor. Prepares the materials for the reviews required at each stage of the instructional development process. Make revisions specified by the project manager or sponsor.

Instructional Facilities: Instructional facilities include number of rooms, room capacity, and times available.

Instructional Strategies: The means by which the content and skills are transferred from the training delivery vehicle (instructor or CBT or video or Web) to the learner. Examples include: demonstrations, role plays, hands-on practice, simulations, discussion, lecture, illustrated diagrams with explanations, step-by-step review; self-study exercises, reviews, on-the-job training exercises, practice with coaching, video demonstrations, examples or role plays, and others. Often organized by these categories: pre-instructional activities, content presentations, learner practice, feedback, and closure.

Instructional Systems Design (ISD): (Also known as Instructional Design) The name given to the process of creating instruction in order to close a performance gap that is due to a lack of knowledge and skills.

Instructor: An individual who gives knowledge or information to learners in a systematic manner by presenting information, directing structured learning experiences, and managing group discussions and activities.

Instructor's Manual: The collection of written materials given to instructors to facilitate their use of the instructional materials. The manual should include: an overview of the materials, tests with answers, and any supplementary information thought to be useful to the instructors.

Intellectual Skills: A skill that requires some unique cognitive activity; involves manipulating cognitive symbols, as opposed to simply retrieving previously learned information.

Interactive Training: An umbrella term that includes both computer-based and multimedia training.

ISD: see Instructional Systems Design

Iterative Process: One that is non-linear; offers the opportunity to return to parts of the process and make changes due to knowledge gained in other parts of the process.

Jargon: Special terms generated, adopted, or adapted by members of a profession that enables a short-hand communication that is efficient for practitioners who understand the terms but may be confusing to those who don't.

Job Aids: Teaching devices intended to be self-explanatory and self-instructional; a formalized set of textual and / or graphical step-by-step directions for accomplishing a task through one or more techniques.

Job Analysis: Breaking down the complexity of a person's job into logical parts such as duties and tasks. It identifies and organizes the knowledge, skills, and attitudes required to perform the job correctly. This is accomplished by gathering task activities and requirements by observation, interviews, or other recording systems.

Just-In-Time Training (JITT): A method of providing training when it is needed. Its advantages are:

- Eliminates the need for refresher training due to subject knowledge loss experienced if training precedes, over an extended period of time (prevents decay if the learner cannot use the material upon returning to the job).
- Prevents training being wasted on people who leave the job before the training they received is used on the job.

- Allows the learners to receive training when they need it...not weeks or months later.

Kirkpatrick's Four Levels of Evaluation: Concepts developed by Donald Kirkpatrick describing four levels for measuring the effectiveness of training; eventually became foundation practices in measuring the results of training.

Knowledge: Knowledge describes thought, fact or concept; such as a cognitive task. Specific information required for the student to develop the skills and attitudes for effective accomplishment of the jobs, duties, and tasks.

Knowledge Management: Capturing, organizing, and storing knowledge and experiences of individual workers and groups within an organization and making it available to others in the organization. The information is stored in a special database called a knowledge base and is used to enhance organizational performance. Two of the most common ways are:

- Documenting individual's knowledge and disseminating through manuals or a database.
- Using such tools as groupware, email, and the Internet that facilitates communication.

Knowledge Mapping (Mind Maps): A learning method similar to outlining that consists of drawing out circles and connecting them with lines while writing words in the circles and on the lines.

Learner Centered Instruction: An instructional process in which the content is determined by the student's needs, the instructional materials are geared to the student's abilities, and the instructional design makes the students active participants.

Learner Characteristics: The traits, such as reading level, possessed by learners that could affect their ability to learn. These characteristics are included in the target population description.

Learner Analysis: Data collected about the learner group that is used to impact decisions throughout the ISD process from influencing your recommendation of the appropriate training delivery vehicle to helping you select appropriate learning strategies in the Design phase of the process. Components include: learner group(s) identification, general characteristics, numbers, and location, experience level, attitude, and skills that impact the training delivery system.

Learner Guide: A print resource used in the instructional process by the participants to enhance the learning during the training and, in some situations, to use as a reference tool following training.

Learner Plan: The portion of the Implementation Plan that describes how the learners will be selected and prepared to participate in the training; includes the following components: identification, schedule, notification, tracking plan.

Learning: A relatively permanent change in behavioral potentiality, that can be measured, that occurs as a result of reinforced practice; gaining knowledge, skills, or developing a behavior through study, instruction, or experience.

Learning Activities: Events intended to promote trainee learning.

Learning Context: The actual physical location (or locations) in which the instruction that is under development will be used.

Learning Curve: A curve reflecting the rate of improvement in performing a new task as a learner practices and uses her newly acquired skills.

Learning Decay: A decrease of learned skills over a period of time. Decay can be retarded by the conduct of sustainment training.

Learning Hierarchy: A graphic display of the relationships among learning objectives in which some learning objectives must be mastered before others can be learned.

Learning Management System (LMS): Infrastructure platform through which learning content is delivered and managed. A combination of software tools perform a variety of functions related to online and offline training administration and performance management.

Learning Object: A reusable chunk of information that is media independent. Includes Reusable Information Objects (RIOs), educational objects, content objects, training components, nuggets, and chunks.

Learning Objective: A statement of what the learners will be expected to do when they have completed a specified course of instruction. It prescribes the conditions, behavior (action), and standard of task performance for the training setting. An Enabling Learning Objective measures an element of the Terminal Learning Objective. Sometimes referred to as performance, instructional, or behavioral objectives.

Learning Organization: Continually learning new KSA's (knowledge, skills, abilities or attitudes) and applying them to improve product or service quality.

Learning Portal: Any Website that offers learners or organizations consolidated access to learning and training resources from multiple sources.

Learning Strategies: The methods that students use to learn. This ranges from techniques for improved memory to better studying or test taking strategies. For example, one learning strategy program is SQ3R which suggests five steps:

- **S**urvey the material to be learned
- Develop **Q**uestions about the material
- **R**ead the material
- **R**ecall the key ideas
- **R**eview the material

Learning Style: A composite of the cognitive, affective, and physiological factors that serve as relatively stable indicators of how a learner perceives, interacts with, and responds to the learning environment. Included in this definition are perceptual modalities, information processing styles, and personality patterns.

Learning Style Inventory: Kolb & Fry's Learning Style Inventory which theorizes that people develop preferences for different learning styles in the same way that they develop any other sort of style (i.e., management, leadership, negotiating, etc.). The four predominant styles are:

- Active experimentation (simulations, case study, homework). If this if the preferred style of the learner then she is an Activist - what's new? I'm game for anything.
- Reflective observation (logs, journals, brainstorming). If this if the preferred style of the learner then he is a Reflector - I'd like time to think about this.
- Abstract conceptualization (lecture, papers, analogies). If this if the preferred style of the learner then she is a Theorist - How does this relate to that?
- Concrete experience (laboratories, field work, observations). If this if the preferred style of the learner then he is a Pragmatist - How can I apply this in practice?

Learning Style Preferences (VAK): Preferred method of learning for an individual:

- **V**isual learners - gain knowledge best by seeing or reading what you're trying to teach.
- **A**uditory learners - gain knowledge best by listening.
- **K**inesthetic learners - gain knowledge best by touching, moving, and doing.

Lesson: A segment of instruction that contains a learning objective and information to be imparted to the student.

Lesson Plan: A formal design for a particular instructional segment. Lesson plans can range from single-page outlines to comprehensive instructor manuals. Specifically, a lesson plan guides the teacher in producing and delivering the instruction. A lesson plan relates learner outcomes to instructor and student activities for accomplishing the outcomes and to resources required supporting the activities.

Levels of Competence: There are four levels of competence:

- Unconscious incompetence: the learner is unaware that he cannot do a task.
- Conscious incompetence: the learner is aware of the task, but cannot do it.
- Conscious competence: the learner is able to think through a task step-by-step and do it.
- Unconscious competence: the learner can do the task without thinking about intermediate steps.

Levers of Performance: Nine factors that influence the performance of employees; includes training, information, and feedback, among others.

Lickert Scale: A way of generating a quantitative value (numerical) to a qualitative questionnaire (e.g. poor, fair, good, very good, excellent). Sometimes used on end of course evaluation (smile sheets). For an ascending five point scale incremental values are assigned to each category and a mean figure for all the responses is calculated (via the sum of the products of the

categories' assigned value times the number of respondents for that category, divided by the total number of respondents). Example: Total number of respondents=25, assigned values are; poor=1, fair=2, good=3, very good=4, excellent=5; respondents selecting following categories are; good=9, very good=10, excellent=6. The quantitative mean = ((9*3)+(10*4)+(6*5))/25=3.9

Lifelong Learning: The concept of 'continuous personal development' through student centered (self-actualized) learning. Lifelong learners demonstrate:

- The ability to accept themselves as well as others
- Spontaneous but ethical behavior
- A strong focus upon problems outside themselves
- The ability to capitalize on the qualities of detachment and solitude
- Independent stability in the face of hard knocks
- Freshness of appreciation
- Deep feelings of identification, sympathy, and affection for humankind
- Profound interpersonal relationships
- A democratic character structure
- Strong ethics with definite moral standards
- Philosophical, unhostile sense of humor
- A special kind of creativeness
- The ability to function independently as a part of the growing tip of humanity

Mastery: Meeting all of the specified minimum requirements for a specific performance.

Matching Test Items: Test items consisting of a stem that asks a question or gives a task, followed by two parallel columns (premise and response): an item in the premise column, through associated Arabic numbers or alphabetic letters, is matched with the correct item(s) in the response column.

Measurement: A tool used to provide feedback to the learner and the trainer to determine where the learner is in relation to the ultimate goal or objective.

Media: The physical means selected or developed to communicate instructional messages. Examples include drawings, slides, audiotape, computer, person, model, etc.

Media Selection: A function carried out during the development of the instruction whereby various media are selected in order to enhance the quality of the learning, present or reinforce key points, and meet the needs of different learning styles.

Mentor: A wise and trusted counselor. Three mentoring roles can exist in a work context:

- Mainstream mentor - someone who acts as a guide, adviser and counselor at various stages in someone's career destined for a senior position.
- Professional qualification mentor - someone required by a professional association to be appointed to guide a student through a program of study, leading to a professional qualification.
- Vocational qualification mentor - someone appointed to guide a candidate through a program of development and the accumulation of evidence to prove competence to a standard.

Model: Model is defined as an example or pattern that prescribes relationships in a normative sense.

Modeling: The process of observing and mapping the successful behaviors of other people.

Modularization: The process by which courses are divided into separate elements - modules - which are self contained.

Module: A stand-alone instructional unit that is designed to satisfy one or more learning objectives. A separate component complete within itself that can be taught, measured, and evaluated for a change or bypassed as a whole; one that is

interchangeable with others, used for assembly into units of differing size, complexity, or function. A module consists of one or more lessons. Also called "annex" or "subcourse".

Motor skills: Executive subroutines and past skills: learned through practice.

Multiple-choice Test Item: A test item that contains a stem setting forth a problem, followed by a correct solution randomly placed among several foils or distracters.

Multimedia Training: An instructional system that incorporates all or various instructional methods and media. It describes any application that uses multiple media (graphics, text, animation, audio, video), but multimedia is primarily thought of as any application that uses high-bandwidth media (audio and video) and is most often delivered on CD-ROM.

Myers-Briggs Type Indicator (MBTI): Known formally as Jung's theory of personality type, first developed by Carl Jung in the early 1920's and more recently resurrected and made into a practical instrument by Myers and Briggs. It is a particular test vehicle for personality typing. Personality typing essentially assumes that our whole personality can be divided into four orthogonal (or independent) areas or scales:

- Extroversion (E) or introversion (I)
- Sensing (S) or intuition (N)
- Thinking (T) or feeling (F)
- Judging (J) or perceiving (P)

Within each scale we have a preference for one of two opposites that define the scale. This makes for a total of 16 different combinations (2x2x2x2), each of which defines one particular and unique personality type. Summary of the overall personality for each of the 16 types:

- ENFJ: "Pedagogue". Outstanding leader of groups. Can be aggressive at helping others to be the best that they can be. 5% of the total population.
- INFJ: "Author". Strong drive and enjoyment to help others. Complex personality. 1% of the total population.
- ENFP: "Journalist". Uncanny sense of the motivations of others. Life is an exciting drama. 5% of the total population.
- INFP: "Questor". High capacity for caring. Calm and pleasant face to the world. High sense of honor derived from internal values. 1% of the total population.
- ENTJ: "Field Marshall". The basic driving force and need is to lead. Tend to seek a position of responsibility and enjoys being an executive. 5% of the total population.
- INTJ: "Scientist". Most self-confident and pragmatic of all the types. Decisions come very easily. A builder of systems and the applier of theoretical models. 1% of the total population.
- ENTP: "Inventor". Enthusiastic interest in everything and always sensitive to possibilities. Non-conformist and innovative. 5% of the total population.
- INTP: "Architect". Greatest precision in thought and language. Can readily discern contradictions and inconsistencies. The world exists primarily to be understood. 1% of the total population.
- ESTJ: "Administrator". Much in touch with the external environment. Very responsible. Pillar of strength. 13% of the total population.
- ISTJ: "Trustee". Decisiveness in practical affairs. Guardian of time- honored institutions. Dependable. 6% of the total population.
- ESFJ: "Seller". Most sociable of all types. Nurturer of harmony. Outstanding host or hostesses. 13% of the total population.
- ISFJ: "Conservator". Desires to be of service and to minister to individual needs - very loyal. 6% of the total population.
- ESTP: "Promoter". Action! When present, things begin to happen. Fiercely competitive. Entrepreneur. Often uses shock effect to get attention. Negotiator par excellence. 13% of the total population.

- ESFP: "Entertainer". Radiates attractive warmth and optimism. Smooth, witty, charming, clever. Fun to be with. Very generous. 13% of the total population.
- ISTP: "Artisan". Impulsive action. Life should be of impulse rather than of purpose. Action is an end to itself. Fearless, craves excitement, master of tools. 5% of the total population.
- ISFP: "Artist". Interested in the fine arts. Expression primarily through action or art form. The senses are keener than in other types. 5% of the total population.

Needs Analysis: A method used to determine training needs by reviewing work tasks, identifying performance factors and objectives, and defining training objectives and recommendations.

Needs Assessment: 1) A systematic study that incorporates data and opinions from varied sources in order to create, install and evaluate educational and informational products and services. Problem identification process that looks at the difference between "what is" and "what should be" for a particular situation. A systematic study that incorporates data and opinions from varied sources in order to create, install and evaluate educational and informational products and services. The effort commences as a result of a "hand-off" from performance analysis. Also known as training needs assessment, needs analysis, front end analysis, task and subject matter analysis.

Neuro-Linguistic Programming (NLP): Developed in the 1970's by John Grinder, professor of linguistics, and John Bandler, a mathematician. They produced a set of 'hypothetical' rules for self-management and one-to-one communication. Many practitioners now apply these rules to education, training, and development to allow learners to recognize their 'automatic' responses and behavior and apply strategies to control them.

Norm-Referenced Test: Norm-referenced test is the type of test that compares the performance of a student with the performance of other students.

Objectives (Learning): The desired outcomes for the training event (*what the training should accomplish in terms of performance the learners should exhibit in the learning environment in order to be considered competent)*; consist of three components (the performance, criterion and standard); are congruent with the tasks and testing strategies. (Objectives can also be established for on-the-job performance, business or impact performance, or ROI) (Often referred to as Performance Objectives although Performance Objectives are actually a description of the performance shown on-the-job rather than in the learning environment).

On-the-Job Training (OJT): Formal training for learning the skills and knowledge to perform a job that takes place in the actual work environment.

One-to-one Evaluation: The first stage in formative evaluation, referring to direct interaction between the designer and individual tryout student.

Organizational Change: Leading people on a different path than what they are accustomed to. Associated with business planning. There are three main driving forces - people, technology, and information.

Passive Learning: Learning where no feedback is provided to a user's response.

Pedagogy (pèd-e-go´jê): Literally means the art and science of educating children. Pedagogy is often used as a synonym for teaching. Pedagogy embodies teacher-focused education.

Perceptual Modality: Learning style that refers to the primary way our bodies take in and perceive information; auditory, visual, kinesthetic, and tactile.

Performance: The accomplishment of a task in accordance with a set standard of completeness and accuracy.

Performance Aid: See job aid.

Performance Analysis: The process by which professionals partner with clients to identify and respond to opportunities and problems, and through study of individuals and the organization, to determine an appropriate cross-functional solution system. Performance analysis is a systematic and systemic approach to engaging with the client. It is the process by which we determine when and how to use education and information resources.

Performance Checklist: The breakdown of a learning objective into elements that must be correctly performed to determine whether each learner satisfactorily meets the performance standards described in the learning objective.

Performance Criteria/Standard: Part of a learning objective that describes the observable learner behavior (or the product of that behavior) that is acceptable as proof that learning has occurred.

Performance Discrepancy: (Also known as the performance gap) The gap that exists between what we call *Actual Performance* (the current performance of the employee) and the *Desired Performance* (the required or requested performance of the employee).

Performance Drivers: Causes of performance problems. Barriers which get in the way of optimal performance, and influence the success of people and organizations.

Performance Evaluation: A process of data collection and analysis to determine the success of learners on a specific task as a result of a training program.

Performance Gap: The delta between desired and actual performance.

Performance Improvement: A systematic process of discovering and analyzing human performance improvement gaps, planning for future improvements in human performance, designing and developing cost-effective and ethically-justifiable interventions to close performance gaps, implementing the interventions, and evaluating the financial and nonfinancial results.

Performance Objective: Often mistakenly referred to as the *learning* objective, it actually describes what the learner should be able to do *on-the-job* (as opposed to what the learner should be able to do within the learning environment as a result of the training).

Performance Requirements: The identification of the separate acts that are required to satisfactorily complete an individual's performance on the job. It includes the act (behavior), the conditions under which the behavior is performed and the standard of performance required by the incumbent.

Performance Technology: Technologies designed to enhance human performance and capabilities in the workplace. Also referred to as human performance technology, it is a systematic process of integrating practices from a vast breadth of fields such as instructional technology, organizational development, motivation, feedback, human factors, and employee selection.

Performance Test Items: Test items used to determine whether someone can directly apply specific skills in appropriate situations, usually taking the form of a checklist, where the evaluator checks off or grades appropriate items as the student performs them.

Phillips, Jack J.: Expert in the field of training evaluation; developed the Five Levels of Evaluation model.

Pilot Test: The last step in the Field Trial (the third phase of formative evaluation). Learners who participate in the Pilot Test are expected to meet the objectives in the instruction. Data collected from the Pilot Test is provided to the client who uses it to make the final decision about whether to proceed with implementation.

Posttest: A criterion-referenced test designed to measure performance of objectives to be taught during a unit of instruction; given after the instruction. Typically does not include items on entry behaviors.

Practice: Repeated and systematic performance to gain proficiency using the psychomotor, cognitive, and affective skills, acquired in the training phase. Initial practice occurs while the student is acquiring skills; proficiency practice occurs at intervals after training so that the skills may be refreshed. Practice enables the student to perform the job proficiently.

Predictive Validity: The extent to which the test or expert opinion predicts how well students will actually perform on the job.

Preferred Modes Indicator (PMI): Every individual has a preferred mode(s), at both conscious and subconscious levels that determines the likely way in which situations will be perceived, reactions shaped and behavior molded. Those modes are usually well rooted in significant subsequent life events. (Similar to "Behavior Style Profile," which has the style name listed in parentheses ( ) below). The Four Modes are:

- "Be Popular" (persuader) people have strengths that are likely to lie in their ability to get along with people. They are often good communicators.
- "Be Careful" (organizer) people have strengths that lie in their reliability and ability to do exactly what they are told. They follow procedures carefully.
- "Be Strong" (controller) People have strengths that are likely to lie in a desire to take control of most situations and ensure that results are obtained.

- "Be Perfect" (analyst) people's strengths are likely to lie in their pursuit of high quality results in everything they do. Goal oriented.

Pretest: A criterion-referenced test designed to measure performance of objectives to be taught during a unit of instruction and/or performance on entry behaviors; given before instruction begins.

Procedure: Procedure describes a sequence of tasks.

Process: A planned series of actions that advances a procedure from one stage of completion to another. A process always has an input and an output.

Product Model: One type of model in which ISD is commonly applied. The model assumes that a technically sophisticated product, which provides several hours of instruction, will be produced. The Bergman and Moore Model is an example. Product models usually assume that the instructional product is needed and that something new will be developed. Considerable effort is placed on revision so that many facilitators can implement the instruction.

Proficiency: Ability to perform a specific behavior (e.g., task, learning objective) to the established performance standard in order to demonstrate mastery of the behavior.

Project: A specific, finite task with a well-defined set of predetermined outcomes.

Problem: A condition in which someone desires a certain state of affairs but does not immediately know how to attain it.

Prototype: A functional version of a new process and/or product, usually in an unfinished state, whose effectiveness and efficiency is to be tested.

Prototyping: Process of assembling produced and/or revised instructional elements, and of testing, revising, summatively evaluating, and preparing the system for marketing.

Psychomotor Domain: The division of Bloom's taxonomy of educational objectives that references those objectives and test items demonstrating manipulative and/or motor skills.

Purpose Statement: A brief statement (25 words maximum), in which the overarching goal of the training is clearly and succinctly stated.

Rapid Prototyping: An ISD application model first used in the software industry that features instruction offered in early draft form with the stated purpose of obtaining increased input from multiple stakeholders during the revision process in order to produce a superior product.

Reductionism: A meaningful way to study complex subjects by dividing it up into smaller components.

Refresher Training: Used to reinforce previous training and/or sustain/regain previously acquired skills and knowledge.

Reinforcement: Affects the tendency to make a specific response again. It is either positive (increases the response) or negative (decreases the response). Feedback is almost always considered external while reinforcement can be external or intrinsic (i.e., generated by the individual).

Reliability: Yielding comparable results each time. In examinations, reliability is consistency; the same result is achieved on successive trials.

Remediation: Supplemental course materials to correct a learner's understanding or to reinforce the learning objective.

Resource Analysis: Data collected about the resources available to complete the design, development, implementation and evaluation of the training event. Components include: content resources, technology resources, instructional facilities, and human resources.

Response: Any behavior that results from a stimulus or stimuli. In instruction, it designates a wide variety of behavior which may involve a single word, selection among alternatives (multiple choice), the solution of a complex problem, the manipulation of buttons or keys, etc.

Return on Investment (ROI): A calculation comparing the benefits of an action to the costs invested in taking the action. Usually expressed in a percentage by multiplying the calculation by 100.Ê Training ROI compares the benefits of the training to the total costs involved in the analysis, design, development, implementation and evaluation of the training. Estimated ROI is conducted prior to development of the training while actual ROI is calculated after the training.

Schema: In learning psychology, the way in which a human processes, store and "recreates" information coming into the brain.

Script: A written document that provides, for talent in a film or video production, details about their lines, where to stand, and the timing of their activities.

Self-Paced Learning: Learning initiated and directed by the learner. Either for leisure learning or as a result of being informed that we may need additional knowledge for a job, or school. More and more training departments are developing courses that employees go through at their own pace. The term is used by some organizations now to include computer-based, web-based and multimedia training.

Sequencing: Arranging the teaching points, teaching steps, and criterion steps into the most appropriate order for effective learning.

Short-answer Test Items: Test items used for determining the degree of students' factual recall, where they respond to a question with a brief written answer in a designated space, usually below the question.

Simulation: Any representation or imitation of reality. An instructional strategy used to teach problem solving, procedures, or operations by immersing learners in situations resembling reality. The learners actions can be analyzed, feedback about specific errors provided, and performance can be scored. They provide safe environments for users to practice real-world skills. They can be especially important in situations where real errors would be too dangerous or too expensive.

Six Thinking Hats: A strategy devised by Edward de Bono which requires learners and trainers to extend their way of thinking about a topic by wearing a range of different 'thinking' hats:

- White hat thinking identifies the facts and details of a topic.
- Purple hat thinking examines the negative aspects of a topic.
- Yellow hat thinking focuses on the positive aspects of a topic.
- Red hat thinking looks at a topic from the point of view of emotions and feelings.
- Green hat thinking requires imagination and lateral thinking about a topic.
- Blue hat thinking focuses on reflection, metacognition (thinking about the thinking that is required), and the need to understand the big picture.

The colors help learners to visualize six separate modes of thinking and to convey something of the meaning of that thinking, for example, red as pertaining to matters of the heart, white as neutral and objective. Learners learn to reflect on their thinking and to recognize that different thinking is required in different learning situations.

Skill: The ability to perform a psychomotor activity that contributes to the effective performance of a job task.

Skills Transfer: 1) An ability acquired for the performance of a task that may be used in the performance of a different task. 2) The ability to perform a skill that was acquired in a learning environment to a job task.

Small-Group Evaluation: The second stage of formative evaluation, referring to the use of a small number of tryout students who study an instructional program without intervention from the designer and are tested to assess the effectiveness of the instruction.

Small Group Instruction (SGI): A means of delivering training which places the responsibility for learning on the student through participation in small groups led by a small group of leaders who serve as role models throughout the course. SGI uses small group processes, methods, and techniques to stimulate learning.

Soft Skills: Skills needed to perform jobs where job requirements are defined in terms of expected outcomes, but the process(es) to achieve the outcomes may vary widely. Usually, an area of performance that does not have a definite beginning and end (i.e., counseling, supervising, and managing).

Sponsor/Client: This is the person who is paying for the project and who has requested that the project be undertaken.

Standards: Describes the criterion or standards of performance which must be attained. An established norm against which measurements are compared. The time allowed to perform a task including the quality and quantity of work to be produced.

Stem: The part of a test item that asks a question.

Stimulus: Anything that provokes behavior. The event, situation, condition, signal, or cue to which a response must be made.

Storyboarding: A design technique for showing as individual scenes the proposed sequence of visual and audio elements in a production using some form of optically projected media (e.g., television, slid/tape, interactive video).

Subject Matter Expert (SME): A person who can perform a job or a selected group of tasks to standards. Her experience and knowledge of the job designates her as a technical expert. She must know what is critical to the performance of the task and what is nice-to-know. She must have recent job experience, otherwise, her knowledge of the task may be outdated by new procedures or equipment.

Suggestopedia: Methodology developed by Georgi Lozanov. Sometimes called Super Learning or Accelerated Learning. In broad terms, it is a research based technology and an philosophy that uses learners' holistic natural talents to provide them the highest probability of maximizing their learning, retention, and performance. It is supposed to create a stress-free, positive, joyful, psychologically and physically healthy environment that enhances self-esteem and focuses on the needs of the learner.

Summative Evaluation: The process of collecting data following implementation (of at least one training class/event) in order to determine how well it satisfies the instructional goals.

System: System describes interdependence, dynamic, synergistic and responsive to the environment.

System Model: One type of model in which ISD is commonly applied. The model assumes that a team of developers will develop large amounts of instruction such as entire courses or a curriculum. The Dick and Carey Model is an example. System models usually begin with a data collection phase in order to determine the feasibility and desirability of implementing instruction as a solution to the problem.

Target Population: The total collection of a population that is scheduled to enter a given instructional program.

Task: The smallest essential part of a job. A unit of work activity that is a logical and necessary action in the performance of a job. It can be described in simple terms. Has an identifiable start and end point and results in a measurable accomplishment or product.

Task Analysis: Involves the systematic process of identifying specific tasks to be trained; and a detailed analysis of each of those tasks. Task analysis information can be used as the foundation for: developing instructional objectives, identifying and selecting appropriate instructional strategies, sequencing instructional content, identifying and selecting appropriate instructional media, and designing performance evaluation tools. It is always done in the context of a specific job. It facilitates training program design by providing a description of the fundamental elements of a job.

Task Inventory: Inventories the critical outputs of the performance that are required to meet the training goals; is used in the training design to help determine what the learner needs to learn.

Technology Resources: Technology resources include computer, video monitor, LCD (laptop) projector, flip chart, etc. It is important to evaluate the available technology that is available for the training delivery.

Terminal Objectives: Several large objectives that denote the destination expected at the conclusion of the training event; also called TPOs (terminal performance objectives); similar to terminal tasks or instructional goals.

Test, Instructional: Any device/technique used to measure the performance, skill level and knowledge of an individual. See appropriate types listed below:

- Achievement test. A test for measuring an individual's attainment of knowledge/skills as the result of specific teaching or training.
- Aptitude test. A test or battery of tests designed to show a person's capacity for a particular type of behavior in a single field or in several related fields.
- Comparative test. A test given at the completion of a major section of a course and, as required, at completion of a course to measure whether the student has mastered the course learning objectives.
- Criterion-referenced test. A test that establishes whether or not a unit or individual performs the learning objective to the established standard. Performance is measured as a "go" or "no-go" against a prescribed criterion or set of criteria - the learning objective standard. It is scored based upon absolute standards, such as job competency, rather than upon relative standards, such as class standings.
- Diagnostic test. A test used to measure performance against a criterion and to identify specific areas of weakness or strength in individual knowledge and skills.

- End-of-course comprehensive test. An end-of-course test, administered to all initial entry students prior to graduation, designed to ensure a high probability that students can perform all critical tasks taught in the course. It provides feedback on the need for both reinforcement training and course revisions.
- Entry skills test. A test designed to determine if a student already possesses certain knowledge or skills needed as a prerequisite before undertaking new instruction.
- Field test. Tryout of any training course on a representative sample of the student target population to gather data on the effectiveness of instruction in regard to error rates, criterion test performance, and time to complete the course.
- Heuristic test. Heuristic or discovery tests will present problem-solving simulations that emulate the on-the-job environment. These tests present the student with stimulus information that is inadequate, incomplete, ambiguous, or irrelevant to the simulated environment. The student will be required to synthesize knowledge and apply training received in order to solve the job performance simulation.
- Job performance test. A test used to determine whether an individual can perform a job. It may include all job performance measures for a job or a subset of the job performance measures.
- Knowledge test. A test that measures the achievement of theory supporting skill through the use of test items written at the appropriate knowledge and training levels.
- Multiple-choice test. A type of selection test in which the student is asked to choose for each test item the answer(s) that is most correct.
- Non-language test. Identical to the definition for "nonverbal test".
- Nonverbal test. A test that requires little or no speaking, reading, or understanding of language on the part of the examinee either in connection with comprehending directions or making responses. Directions may be given pictorially or in pantomime. Also called "non-language test".
- Norm-referenced test. A test that ranks a student in relation to the performance of other students in contrast to criterion-referenced testing wherein a student is measured against a prescribed performance standard.
- Objective test. A test whose scoring requires no human judgment.
- Performance test. An evaluation of the actual performance of the task or learning objective using the conditions under which it will be performed and the absolute standards for acceptable performance.
- Post-test. A test administered to a student upon completion of a course or unit of instruction to measure learning achieved and to assess whether a student has mastered the objectives of the course or unit of instruction.
- Power test. A test in which items are usually arranged in order of increasing difficulty and in which examinees are given all the time they need to complete as many items as they possibly can.
- Pretest. A test administered to a student prior to entry into a course or unit of instruction to determine the technical skills (entering behaviors) the student already possesses in a given subject. Often used to identify portions of the instruction the student can bypass.
- Proficiency test. A test designed to measure a student's capabilities in terms of the job. It measures both psychomotor and cognitive skills. A performance test is sometimes understood to mean a skill demonstration, while a proficiency test is understood to be a comprehensive procedure used to examine the student's capability to do what the job requires.
- Progress test. A short test administered throughout a course to evaluate student progress. It is administered at strategic points in a course to determine the degree to which students are accomplishing the learning or enabling objectives. Also called "within-course test".
- Qualifying test. A test administered to determine whether a student is qualified for a task that the student has been selected or trained for, or for which the student is being considered. A qualifying test may also be applied to tests used for selecting personnel for training, although the usage is not so common.
- Simple gaming test. Presents the student with fill-in-the-blank, multiple choice, matching, completion, and true/false test items formatted and presented in a gaming style.

- Simulated part-task performance test. Measures critical sub-sets of job task performance. Simulated part-task performance tests should meet the same construction criteria as simulated performance tests.
- Simulated performance test. A performance-based two dimensional simulation of the job performance required. A synthetic performance test.
- Simulation performance test. A test that measures the student's ability to meet training objectives by performing whole tasks or parts of tasks using simulators or simulations.
- Speed test. A test in which the time limit is set so that almost no one can finish all the items or tasks making up the test.
- Survey test. A criterion-referenced test used prior to the development of an instructional system. It is administered to a sample of prospective students to determine what knowledge and skills should be put into the course of instruction. Also called "Threshold Knowledge Test (TKT)".
- Threshold Knowledge Test (TKT). Identical to the definition for "survey test".
- True-false test. A type of selection or alternate-response test in which the student indicates whether each of a number of statements is true or false.
- Verbal test. Any test involving language. In general usage, the term is restricted to those tests in which the questions and responses are mainly expressed in language or which use language to a substantial degree.
- Within-course test. Identical to the definition for progress test.
- Written test. A test in which an individual demonstrates their capabilities by responding to written test items. It is not usually a performance test, and hence is usually a measure of supporting knowledge rather than skills.

Test Criteria: Test criteria are the component of a learning objective that describes the quality or standard of performance that will be considered acceptable.

Testing Strategy: The type of evaluation conducted during the training in order to determine if the learner met the specified objective (performance, criteria and condition); is congruent with the related task.

Test Item Analysis: The process of evaluating single test items by any of several methods. This usually involves the determination of how well an individual item separates examinees, its relative difficulty value, and its correlation with some criterion of measurement.

Test Reliability: The degree to which a test/test item gives consistent results each time it is used.

Test Validity: The degree to which a test measures what it was designed to measure.

Topic: The basic organizational unit of instruction covering one or more closely related learning objectives.

Topical Outline: An outline of the topics to be included in the instructor guide. It provides course learning objectives, a listing of part, section, and topic titles and statements of rationale to explain or justify the training. It is used by the curriculum designer to develop the instructor guides.

Trainer: A person who directs the growth of learners by making them qualified or proficient in a skill or task. Uses coaching, instructing, and facilitating techniques to accomplish the learning objectives.

Training: Learning that is provided in order to improve performance on the present job.

Training Aid: An item to enhance training. May include charts, slides, and schematics.

Training Delivery Systems: The vehicles available to deliver the training to the learner in order to most effectively provide the outcome desired. Examples include: classroom training, computer-based training (CBT), video, web-based training (WBT), combination (two or more of the above, for example classroom with video).

Transfer of Training: The ability of persons to effectively apply to the job the knowledge and skills they gain in dissimilar learning situation. Also, the learning in one situation that facilitates learning (and therefore performance) in subsequent similar situations.

True-false Test Items: A test item consisting of a short statement with which the person being tested indicates agreement or disagreement.

Tryout: The testing of a prototype or some subset of its elements, under actual or simulated conditions that are representative of those in the targeted system.

Tutorial: An instructional program that presents new information to the student efficiently and provides practice exercises based on that information. A lesson design used to teach an entire concept. Interactive instruction that asks questions based on the information presented, requests student responses, and evaluates student responses. It is self-paced, accommodates a variety of users, and generally involves some questioning, branching, and options for review.

Validity: The degree to which a test measures what it was designed to measure. Although there are several types of validity and different classification schemes for describing validity there are two major types of validity that test developers must be concerned with, they are content-related and criterion-related validity.

Verbal Information: A network of organized knowledge describes verbal information.

Walkthrough: A test before the final acceptance or evaluation to verify that the training environment is ready for learning to take place.

WBT: see Web-based Training

Web-based Training (WBT): Any instructional or training technique, which utilizes the Web environment.

Workbook: A handout that contains procedures and exercises designed to assist the learner in achieving the learning objectives.

Work Sample: The use of a number of random samples to determine the frequency with which certain activities are performed. Performance on a work sample is frequently used as a criterion against which prediction devices in evaluation are validated.

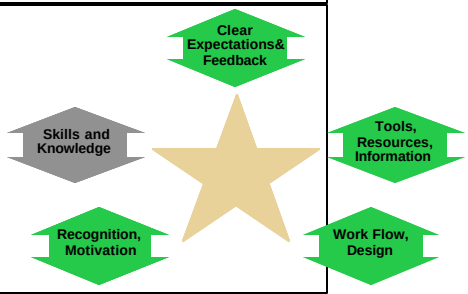
Appendix B:

Design and Development Job Aids

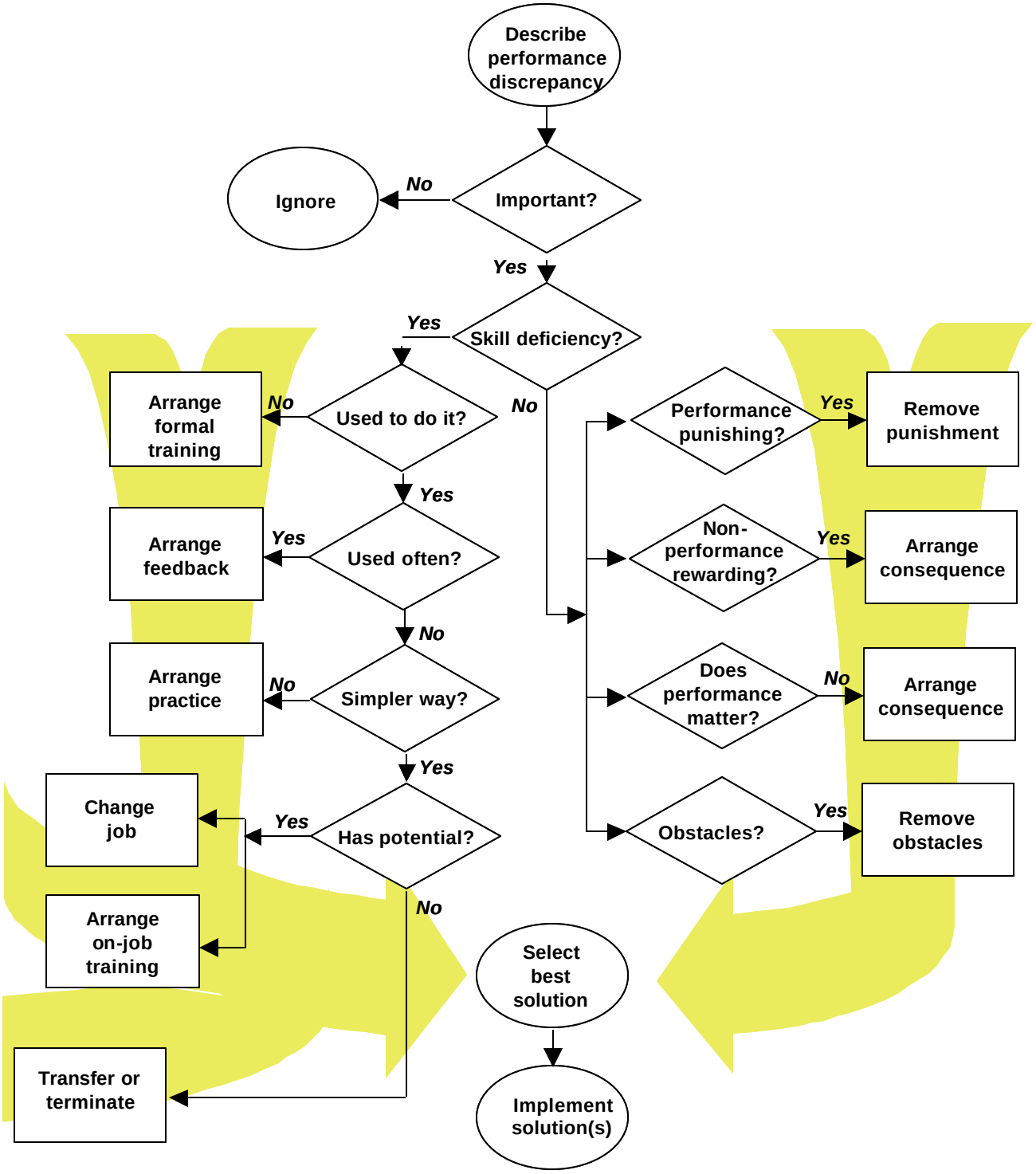
Instructional Design Job Aid

Training Design/Development Step	What to Use	Who to Use	Completed
1. What is the desired performance?	Interview Critical Incident Survey Delphi technique	Customers Managers Job Description Subjects (maybe)	
2. What is the current performance?	Interview Critical Incident Observation Errors Questionnaire	Customers Managers Subjects Logs	
3. What are the reasons for the performance gap?	Recognition Feedback Resources, Tools Information Clear Expectations Skills and Knowledge	Subjects Managers Customers (maybe)	
Subjects don't have the required skills and knowledge. Training is part of the solution.			
4. What are the prerequisites for the training?	Job Title Experience Specific Skills Precourse Precourse test	Subjects Other Instructors in the curriculum	
5. What should students be able to do after the training?	See *Designing High Performance Training Precourse* Evaluation Synthesis Analysis Application Comprehension Knowledge	Managers Subjects Other Instructors in the curriculum Customers (maybe)	
6. Where can I steal, beg, or borrow stuff to address the gap?	Other Courses Seminars Universities Books On-Line Training Vendors	Other Instructors Product Engineers Product Marketing	
7. How will we know when students can do what they're supposed to?	See *Developing Effective Multiple-Choice Tests* Demonstrations	Other Instructors Managers	
8. What learning activities will take students to the desired outcome?	See *Training and Group Methods That Work* Talk to other instructors	Other Instructors Managers Ideas from Vendors	
9. How will I get feedback in the pilot?	Feedback Form Feedback Jar	Participants Managers	
10. What do I revise and why?	Focus Groups E-Mail	Participants Prod. Mgrs	

Audience Profile and Context Analysis Checklist

Component	Write notes here or place checkmark when completed
Characteristics of the learners	
Entry behaviors and prior knowledge of topic	
Attitudes toward content and potential delivery systems	
Motivation (ARCS)	
Ability levels	
General learning preferences	
Attitudes toward the organization giving the instruction	
Group characteristics	
Context in which skills will be used	
Context in which skills will be used	
Adaptability of site to simulate workplace	
Adaptability of delivery approaches	
Learning site constraints	

Performance Analysis Flowchart (Mager)



Needs Assessment Questions

Use the following questions to help determine the cause of the performance problem and identify possible solutions (which might not necessarily include training):

Describe the problem.

What do you observe?

What should it be? What would you like it to be?

What's the impact? On you? On them? On others?

If everyone did it well enough, often enough, what would it look like? Be specific.

How much? How many? How often? How good?

Do the employees know that they are expected to perform the desired behavior?

How do you know?

How do they know what's expected? How was it communicated?

Do they know the consequences of not performing?

Do employees have the tools, resources, data, etc. when needed to perform?

How do employees get feedback regarding their performance?

Have they been given specific feedback of when this was performed well? When it was not? When was the last time they were given specific feedback?

Is performance in this area demanded by management? Are there positive and negative consequences for performance? What are they?

Are there people who do it well? Do they do it every time it is appropriate?

Could they do it if their lives depended on doing it?

Have they done it before and now stopped?

What do you recommend?

If we fixed it, are there other problems that might arise?

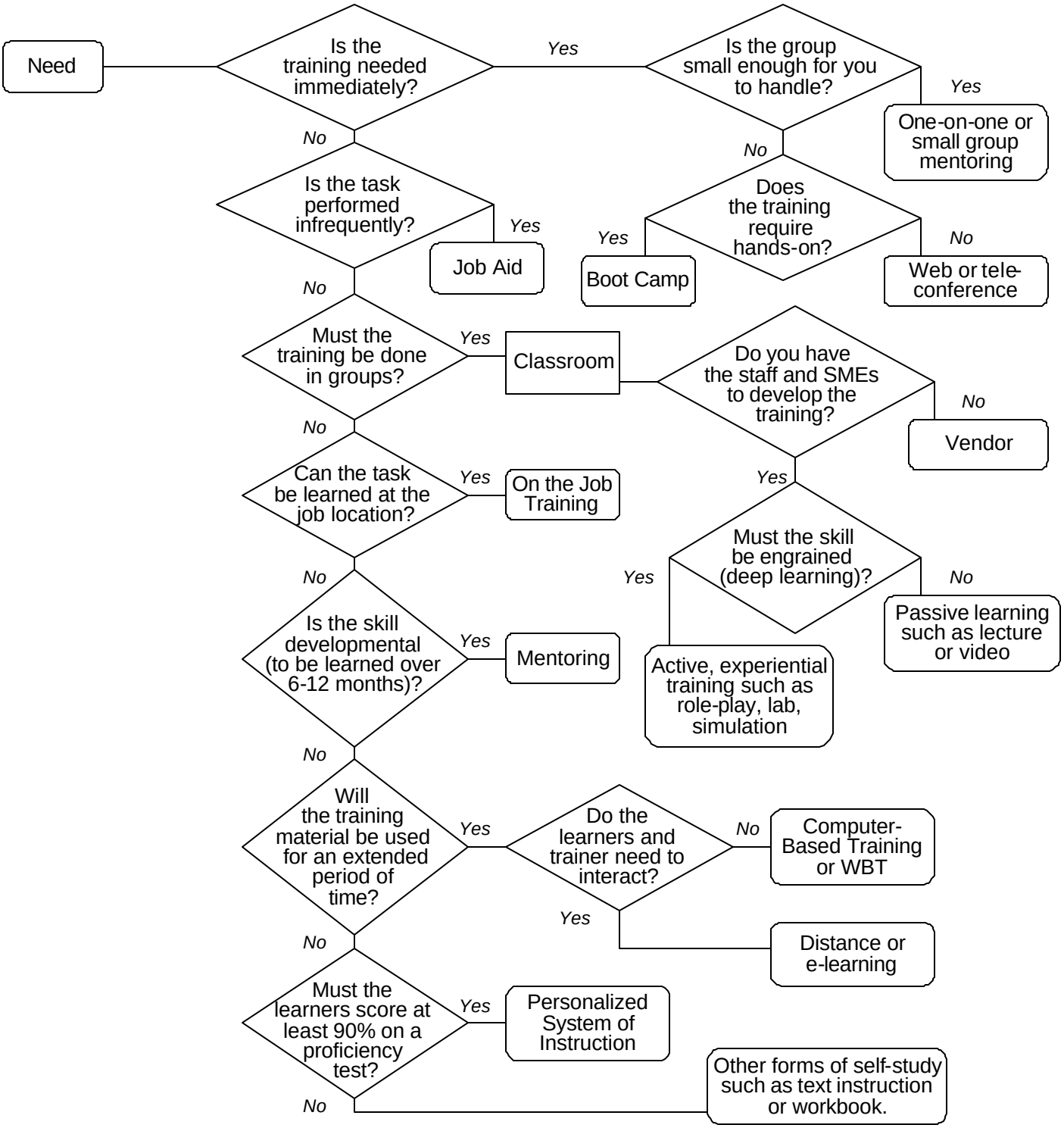
Still stuck?

Use scenarios: If we had two reps, one good and one bad, and a customer called, how would each respond.

Continue probing: What do you mean by "more effectively"? What would I see?

Build a list of terminal behavioral objectives and ask, "If they could do these things, would that address the problem?" Then survey the potential participants to see which of the objectives they can already do.

Instructional Media Selection Flowchart



Instructional Strategies for Five Content Types (1 of 2)

Application Level

	Facts	Concepts	Processes	Procedures	Principles
Definition	Facts are basic information. Facts are inefficient to store in memory and are prone to recall errors. Job aids are preferred to memorization of most facts.	A class of items that is known by a common name, include multiple specific examples, share common features, and vary on irrelevant features. Two types: concrete and abstract.	Descriptions of how things work rather than how to do things. Two types: business (describing work flows in organizations) and technical (describing how things work in equipment or nature).	A series of clearly defined steps which result in the achievement of a job task. Two types: linear and branched.	Guidelines or rules which govern. Principles are far-transfer training and are useful when actual scenarios in which principles are used vary significantly and constantly.
Best Used For	Not applicable at the Application Level.	Technical training (along with procedures) New hire training Skills training	New hire training Trouble shooting Customer service Sales (Big picture stuff)	Data entry Trouble shooting Programming Safety procedures Some software	Sales Customer service Management Life skills Change management
Objectives	Not applicable at the Application Level.	Select Analyze Contrast Distinguish Validate	Create Generate Develop Formulate Propose	Assemble Configure Demonstrate Perform Process	Assess Criticize Evaluate Judge Position
Assessments	Not applicable at the Application Level.	Measure ability to classify unknown items. Format assessment questions like the practice exercises but with new examples. Have students choose from examples.	Measure ability to solve a problem using the process. Simulations Problem-solving scenarios	Measure speed and/or accuracy in completing the procedure. Labs and simple simulations Have students demonstrate the procedure.	Measure proficiency in meeting skills criteria. Best done by skilled raters/evaluators using behavioral criteria. Use behavioral checklists. Train rater/evaluators.
Suggested Learning Activities	Not applicable at the Application Level.	Discussion Diagrams Classifying games Verbal explanations	Case studies Simulations Work problems	Activity tables Decision tables Flow charts Labs	Role plays Simulations Analogies Plays
Suggested Learning Sequence	Not applicable at the Application Level.	1. Define the concept. 2. Provide examples to illustrate common characteristics. 3. Provide non-examples to further identify characteristics. 4. Use diagrams for concrete concepts; use verbal explanations for abstract concepts. 5. Ask students to classify objects into their category. 6. Provide feedback.	1. Outline the process. 2. Explain why it is important to know this process. 3. Give a common example to illustrate how the process works. 4. Give a problem and ask the class to solve the problem. 5. Ask students to solve a problem or make an inference based on the process. 6. Provide feedback.	1. List the procedure (document it and provide it as a handout). 2. Demonstrate the procedure highlighting decision points and troublesome areas. 3. OPTIONAL: Ask one student to perform the procedure while the rest of the class observes; provide feedback. 4. Ask students to perform the procedure. 5. Provide feedback.	1. State the principle. 2. Provide varied examples to illustrate the principle being applied. 3. Provide examples where the principle wasn't applied and the resulting consequences. 4. Provide analogies to build off of prior knowledge. 5. Demonstrate the principle in a scenario. 6. Provide practice exercises/role plays. 7. Provide feedback.

Instructional Strategies for Five Content Types (2 of 2)

Remember Level

	Facts	Concepts	Processes	Procedures	Principles
Definition	Facts are basic information. Facts are inefficient to store in memory and are prone to recall errors. Job aids are preferred to memorization of most facts.	A class of items that is known by a common name, include multiple specific examples, share common features, and vary on irrelevant features. Two types: concrete and abstract.	Descriptions of how things work rather than how to do things. Two types: business (describing work flows in organizations) and technical (describing how things work in equipment or nature).	A series of clearly defined steps which result in the achievement of a job task. Two types: linear and branched.	Guidelines or rules which govern. Principles are far-transfer training and are useful when actual scenarios in which principles are used vary significantly and constantly.
Best Used For	Information that must be memorized for productivity or importance. **not preferred*	Definitions that must be memorized. **not preferred*	Processes that must be memorized due to complexity of problems to be solved. **not preferred*	Procedures where memorization is required due to safety or productivity reasons. **not preferred*	Simple rules from which specific application can be derived. **not preferred*
Objectives	Identify State Label List Recite	Label Match Name Recognize Select	Name Identify Recall Define Illustrate	Describe Order List Explain Arrange	Label List Identify Quote Generalize
Assessments	Multiple choice Short answer Matching	Matching assessments Multiple choice **not preferred*	Verbal response Long answer/essay **not preferred*	List the steps Recite the steps **not preferred*	List the rules and guidelines Describe the scenario *not preferred
Suggested Learning Activities	Recall facts as part of another learning activity. Provide mnemonics, lists, charts, and descriptive tables.	Memorization Flash cards	Process tables and flow diagrams. Flow diagrams are preferred as they are more memorable and more efficient.	Roundrobin Each-one-teach-one Reorder the mixed up steps	Rule lists Multiple scenarios Discussions and brainstorming

Training Lesson Checklist

Lesson Component	Write notes here or place checkmark when completed
Name of this lesson	
Link to on-the-job performance	
Gain attention	
State objective (performance verbs)	
Link to previous learning	
Present content (process, procedure, principle, concept, fact)	
Guide learning (use appropriate media)	
Provide job aid	
Have participant practice	
Provide feedback	
Assess performance	
Enhance retention and transfer	