In vain have you acquired knowledge if you have not imparted it to others. Deuteronomy Rabbah, (c.900, commentary on the Book of Deuteronomy)

In today’s environment, hoarding knowledge ultimately erodes your power. If you know something very important, the way to get power is by actually sharing it. Joseph L. Badaracco, *1948, professor of Business ethics at Harvard Business School

Effective On the Job Training
Desire + Knowledge + Tools

Share your knowledge. It’s a way to achieve immortality. Dalai Lama (1357-1419, high lama of Tibetan Buddhism)

Often, we are too slow to recognize how much and in what ways we can assist each other through sharing expertise and knowledge. Owen Arthur, *1949, Barbadian politician

ADDIE Training Model
Analysis

Needs Assessment
Who is the Audience?
- Staff who need OJT
- Management who wants to verify progress and competency

What is the overall expected outcome of the session (big picture)?

What are the constraints?
Is there a budget?
How much time do we have?
Analyze the tasks involved!
Is there a curriculum or PLAN for all tasks and procedures?

When
- During probation
- During orientation
- When implementing a new procedure or measurement area
- When refresher training is needed or updates occur
  - __________
  - __________

Design

Establish Learning Objectives – Bloom’s Taxonomy

Break procedures down to the level of observable tasks and steps

Evaluate and Select “Best” Delivery (Teaching Methods) and Techniques (Activities)

Evaluate – what is “best” approach to meet objectives? (Assessment)

What knowledge and skills are critical for staff?
Plan?
Curriculum?

What can be taught best as OJT?
Task Break Down Methods
Task Breakdown - Scenario

Learning Outcomes

BLOOM'S COGNITIVE LEVELS

KNOWLEDGE
- Define
- Repeat
- Record
- List
- Recognize

COMPREHENSION
- Restate
- Discuss
- Explain
- Express
- Identify

APPLICATION
- Interpret
- Apply
- Employ
- Use
- Calculate
- Estimate
- Illustrate
- Operate
- Schedule
- Sketch

ANALYSIS
- Distinguish
- Analyze
- Differentiate
- Appraise
- Calculate
- Experiment
- Test
- Compare
- Contrast
- Criticize
- Diagram
- Impact
- Debate
- Inventory
- Question
- Relate

SYNTHESIS
- Compose
- Plan
- Propose
- Design
- Formulate
- Arrange
- Collect
- Construct
- Create
- Set up
- Organize
- Manage
- Prepare

EVALUATION
- Judge
- Appraise
- Evaluate
- Rate
- Compare
- Value
- Revise
- Score
- Select
- Choose
- Assess
- Estimate
- Measure
- Justify
- Defend
Learning Objectives

**Definition:** A statement in specific and measurable terms that describes what the learner will know or be able to do as a result of engaging in a learning activity.

1. Must be learner centered
2. Select a ______ for performing the task (action). Determine if the verb you have chosen best describes the type of behavior that the learners need to display after training (see Bloom's Taxonomy).
3. Under what conditions (resources) must the task be performed?
4. Determine to what standards (quality) the task must be performed.

Example:
- Using the presented procedure, you will accurately list at least three characteristics that are required in the uncertainty analysis and reporting process.

VERBS.....
Avoid generic “Know” and “Understand”

Know
- describe, identify, recall, arrange, define, duplicate, label, list, memorize, name, order, recognize, reproduce state.

Comprehend
- comprehend, give example, classify, describe, discuss, explain, express, identify, indicate, locate, recognize, report, restate, review, select, translate, ....

Apply
- apply, change, construct, compute, choose, demonstrate, dramatize, employ, illustrate, interpret, operate, practice, schedule, sketch, solve, use, write.

Analyze
- analyze, break down, relate, appraise, calculate, categorize, compare, contrast, criticize, differentiate, discriminate, distinguish, examine, experiment, question, make inferences, find evidence, test.

Synthesize
- summarize, arrange, combine, categorize, assemble, collect, compose, construct, create, design, develop, formulate, manage, organize, plan, prepare, propose, set up, write.

Evaluate
- appraise, interpret, argue, assess, attach, compare, defend, estimate, judge, predict, rate, core, select, support, value, evaluate, prove, deduct.
Learning Objectives

Elements:

1. Learner centered
2. Verb (action)
3. Conditions (resources)
4. Standards (quality)

Activity – What do you want (your employee) to know or do? Is there an SOP or EPO to follow?

Example VERBS:

- Read (the SOP or EPO)
- Pour (water)
- Demonstrate (for another staff or manager)
- Evaluate (against tolerance)
- Read (a meniscus)
- Measure (temperature)
- Measure (weight)
- Calculate (volume)
- Calculate (density)
- Evaluate (ID)
- Test (coefficient of cubical expansion)
- Identify (material)
- Assess design (vs specifications)
Activity – What do you want (your employee) to know or do?

At the end of this session, you will be able to:

Reminder:
1. Learner centered ☑
2. Verb (action)
3. Conditions (resources)
4. Standards (quality)

Alignment is Critical. Best Methods are Critical.

<table>
<thead>
<tr>
<th>Learning Outcome</th>
<th>Instructional Method (Activity)</th>
<th>Assessment Method And Feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants will be able to use the references provided in this lecture, to successfully Perform this SOP/EPO</td>
<td>Reading? Video? Lecture? Demonstration? Perform?</td>
<td>Quiz? Q&amp;A? Observations? Essay?</td>
</tr>
<tr>
<td>Measurement SKILL</td>
<td>Read, Demonstrate, Observe, Independent</td>
<td>??</td>
</tr>
<tr>
<td>Measurement SKILL</td>
<td>SO DO TO</td>
<td>??</td>
</tr>
</tbody>
</table>
Develop Materials for SKILLS Training

Develop Content *(PowerPoint slides?? Checklist??)*

- Document objectives and expectations
- Develop a skills checklist for observations
- Student handouts
- Case studies, resources, props, logistics for hands-on
- Additional learning tools and aids

Evaluate and assess – will it achieve objectives?

Convert technical content (e.g., an EPO or an SOP) – difficult? Easy?

Two more models
- 4-step Skills Method
- SO-DO-TO
Implement

- Logistics – based on location
- Facility
- Equipment & standards – maintenance, updating, shipping
- Presenting or facilitating the OJT – mentor/trainer development (key Knowledge, Skill, Attitude: KSA)
  - Know the technical content (latest and greatest) OR __________
  - Be able to develop objectives, select strategies
  - Be able to present and interact effectively and provide feedback (positive and corrective)
  - Focus on objectives
  - Care
  - Patience

Evaluate

- Evaluate all steps in the ADDIE processes
- Evaluate learning at all stages (student assessments)
- Conduct Evaluation of OJT Facilitator and Content
OJT Resource job aids

Skill Assessment – *think* through the tasks
Task Break-down

4-Step Process for OJT
See One, Do One, Teach One
OJT Planning and Documentation – document the plan, document the observations, provide feedback, maintain evidence

More information: NCSLI Recommended Practice 17
4-Step Skills Training Method

1. Prepare the worker.

2. Demonstrate and Explain the operation.

3. Give the learner Practice.

4. Follow up.

See One, Do One, Teach One (3 steps ---- over time)

See One  (Step 2 in the 4 step process)

Do One (Step 3 in the 4 step process)

Teach One (Taking it a step further!!) – the critical concept is that “you only really learn something once you have to teach others”