

Lawrence Berkeley National Laboratory



EHS Training

Guidance for OJT Instructors

Welcome

On-the-job training (OJT) is an important part of the worker qualification process at Berkeley Lab. If you need to provide OJT to coworkers, this primer is for you.

A trained and qualified workforce is essential to LBNL science, operations, and business processes. Workers are *qualified* if they possess the knowledge, skills, and abilities they need to successfully fulfill their job responsibilities safely and effectively. OJT is a key part of ensuring that workers are qualified before they begin independent work. In situations where people normally work in environments such as research labs where performing work incorrectly can lead to injury, damage to expensive equipment, spoiled experiments, or worse, OJT and effective worker qualification is particularly critical.

Purpose

This primer assumes you will be the instructor giving OJT to one or more coworkers. It provides guidance to help you design and deliver quality on-the-job training.

No short guide can possibly cover everything you might want to know about creating the best possible OJT for your coworkers—professional instructional designers spend a lifetime learning how to design and deliver effective training, and even then, it often falls short. However, this guide does cover some of the core fundamentals.

Introduction

On-the-Job training prepares workers for performing their work activities safely and effectively. It is an iterative, performance-based process in which you, as the more experienced staff or supervisor, work with trainees until the trainees demonstrate to your satisfaction an appropriate level of understanding and mastery of the specific tasks.

OJT could be part of an individual's primary training program, or you might use it to supplement or to maintain skills already learned. You can also use it for cross-training purposes.

OJT Quality Improves Your Confidence that a Trainee is Qualified

What distinguishes effective OJT from ineffective OJT?

One way to think about this is to consider two critical factors:

1. Content coverage
2. Proof of capability

From a content coverage standpoint, there are three content areas that most good OJT covers, regardless of the specific task or subject you are teaching:

1. How to do it
2. How to do it safely
3. What to do if something goes wrong

In this case, “it” is whatever you are teaching. For example, if you are briefing someone on how to use a Schlenk line, then your OJT should cover how to use the Schlenk line, any special concerns for how to use the Schlenk line safely, and what to do if something goes wrong while using the Schlenk line (for example, what if a glass component shatters? Or, what should I do if the fire alarm goes off in the building where I’m working?).

From a proof of capability standpoint, consider this: you will be asked to sign-off on your trainees’ readiness to perform independent work. That’s what “passing” OJT means. So what would make you confident that the person you trained is actually able to perform their work correctly and safely?

Here are a few possibilities to think about:

- How much confidence would you have if your OJT covered all the key elements listed above, and your trainee seemed to “get it?” Maybe she nodded at the appropriate times, asked some good questions, and answered “Yes” when you asked questions like, “Is that clear?” and “Do you understand what I mean?”
- How much more confidence would you have if, in addition to *claiming* that she “gets” what you’re telling her, you also got to observe her explaining the most important steps, procedures, and concepts back to you in her own words?
- How much additional confidence would you have if you also got to observe her performing the tasks covered in your OJT?

Hopefully you can see that the above bullet list items appear in order from least-confidence-inspiring to most. In general, it’s best if you can see your trainee perform. That way, you know she can “do it” (whatever “it” is in the context of your OJT).

Sometimes it’s not practical to directly observe performance. Actual performance may involve using expensive materials, for example. In such cases, you might have to be satisfied with assessing your trainee’s qualifications at a less rigorous level: by asking her to explain what she would do in a given circumstance, for example. This is often true when covering what to do if something goes wrong. You’re not going to ask a trainee to splash herself with acid just to observe that she responds appropriately to that emergency. But you might ask her to explain what actions she

would take (and why) if she accidentally got splashed with acid.

Advantages of OJT

Training in the actual work environment is effective because the “trainee” is surrounded with the sights, sounds, and dynamics of the environment where the actual work takes place. This makes the OJT experience different from a typical classroom course in some important ways.

First, learning in the context of the trainees’ actual work environment helps them encode contextual cues that make it easier to recall what they learned when that learning is needed later in a similar environment. In contrast, classroom and online courses usually lack these contextual cues.

For example, a classroom course designed to teach participants how to split and redirect a laser beam, could help workers understand the general hazards associated with the process, and how they are controlled. It could also help a worker develop a mental model of the process as well as how to identify and solve common problems associated with this task. But it would necessarily be somewhat general. It most likely would not cover the exact brand and model of laser used in any individual student’s lab. It probably would not focus on the safe use of the laser in the context of the specific experiment that each individual student will be performing. OJT is your chance to ensure that the coworkers in your lab know the specific safety issues associated with the particular experimental setups and equipment used in *your* lab.

A second advantage of OJT is that it tends to be more personal and directed than a classroom course. Often, OJT is one-on-one: one student and one trainer. This allows for much more interaction, much more focus on what the student needs, and much greater ability to assess fully the student’s true capabilities and readiness for independent work. Hence, OJT is not a “one size fits all” kind of training. Different co-workers may come to OJT with different levels of existing knowledge and skill. Ideally, they will not receive the same OJT. Rather, each will receive OJT tuned to his or her specific skill and knowledge gaps, and addressing individually the specific experimental setup and role that the trainee plays.

Another advantage is that one-on-one training allows you to use language that is well suited to your trainee, and set a pace that is appropriate. If you have to do OJT with groups, the groups should be small (no more than a few trainees). This ensures that you can effectively provide individualized attention to each student.

Designing Effective OJT

If OJT is the solution, what is the problem that it solves? When you decide to train someone via OJT, this is a question you need to be able to answer. *Why* are you holding this OJT session with this particular person?

Instructional design professionals answer this question by identifying what the student should be able to do *after* completing OJT that he or she isn't currently able to do (or isn't able to do well) *before* completing OJT. The technical term for this list of capabilities is "learning objectives." Here's a simple example:

After completing this OJT session, you (the student) will be able to:

- Set up your workbench while adhering to all safety best-practices
- Choose the appropriate PPE
- Deploy the correct notifications, barriers, and other controls as-needed
- Transport chemicals safely from storage to your lab bench
- Etc.

Usually, you want to focus on a small set of related objectives for any one OJT session.

Notice that each objective begins with a verb. Try to design your sessions so that the verbs in your learning objectives are observable (such verbs are often called "action verbs"). For example, you can't observe someone "knowing" something, but you can observe someone acting on that knowledge. Focusing on the actions instead of the knowledge has two advantages. First, it makes it clear to the trainee how this knowledge relates to his or her job duties. That is, it clarifies *why* the student needs to know this information by showing how the student would make use of it in a realistic job situation. Second, it makes it easier for you to evaluate if your trainee has achieved this objective because you can see him or her "doing" it.

To that second point, when you use action verbs to describe your learning objectives, you will find that each objective directly suggests how your trainee can demonstrate that he or she has achieved (mastered) the objective. For example, in the list of objectives, above, the first one is "Set up your workbench while adhering to all safety best-practices." This suggests that your trainee cannot pass this part of the OJT until he or she sets up a workbench while adhering to all safety best-practices. When you've observed that your trainee can do this correctly, you know that your OJT has achieved this objective.

But how will you get your trainee to the point where he or she can correctly perform the task specified in each objective? Usually, you will do this through some combination of telling and showing, followed by coaching and advising as the trainee tries the task for the first few times.

One simple way to design this is with a two-part structure:

1. Show me how
2. Let me try

In the first part, you provide information, define terms if necessary, and demonstrate the correct way to do the task.

In the second part, you ask your trainee to do the same task you just demonstrated. While the trainee is working through the task, you can provide coaching in the form of feedback, expert tips, praise for correct actions, and corrections for incorrect actions. Depending on how well (or badly) your trainee performed, you may need to repeat this (or both) steps a few times until the trainee achieves an acceptable level of performance. As your trainee repeatedly attempts the task, you are hopefully able to reduce the amount of coaching and correcting you are providing, until eventually, your trainee can perform the task completely on his or her own with no additional input from you.

Being a good OJT trainer

Every one of us has our own teaching style, and we should use this to good advantage. The following provides an overview of some qualities that help create an effective teaching and learning partnership.

Enthusiasm for Producing Learning

- Enthusiasm is having a real enjoyment in what you do. This is a natural part of showing interest in the learning process and how well you relate to your trainees.

Subject Matter Expertise

- The trainees should be able to look to the trainer as the expert. This calls for a level of skill and knowledge that meets or exceeds the standards set for the performance on the job. In this way, choosing an OJT instructor is a careful consideration tailored to the activity.

Effective Communication Skills

- Communication skills are often referred to as interpersonal or people skills. These skills determine how others perceive you. Your success is largely rooted in your ability to get ideas across to others and to understand what others are saying to you. To be effective as a trainer, you must be responsible for making certain that the messages get through clearly in both directions; information from you to the trainee, and information from the trainee to you.
- There are many ways to use your voice to communicate better. The important thing is to know it does have an effect on the trainee. The words you choose, the sequence you put them in, and the way you say them has a lot to do with how effective your

communication will be. It's not only the literal meaning of the words you use that communicate to your trainee, but also the tone of your voice, your body language and other non-verbal cues also send messages to the trainee.

- Language and cultural understandings can influence communication. If language limitations impacts understanding, trainer or trainee should get help.

Effective Presentation Skills

- Presentation skills include public speaking, effective listening, observing skills, proper use of feedback techniques, reinforcement, motivation, and organizational skills. Practicing your presentation skills in advance can help put your trainees at ease so they are comfortable raising questions.

Positive Attitude

- Your attitude is a reflection of the way you feel about yourself, your job, and your world. Most of what we do is a result of how we feel, rather than of what we know. A good, positive, attitude reflects the philosophy and goals of the organization. Acquiring such an attitude will have a positive effect on the trainees, enhance their performance, give them a desire to learn, and assist in their own development of a positive attitude. A positive frame of mind can make a difference in you and in the your co-workers.

Patience and Empathy

- The key is to allow learners to learn at their own pace. No two trainees will be alike, yet usually they will all try to be successful in their efforts. Do not condemn poor performance but strive to understand what is causing it and work with the employee to fix it. Allow the trainee the time and practice to improve. Try to understand the changes that the trainee is going through and be supportive whenever possible.

Counselor and Advisor

- The trainees expect your instruction and support. They need your feedback on their performance. They want to know what progress they have made and areas where they can improve. You can help them by giving them direction and suggestions on performing their job correctly. You need to have high standards, yet be realistic in your expectations of the trainees. Be fair and objective when assessing their performance. Commend them on their strengths and help them to improve their weaknesses. In other words, strive to be a support to the trainees, not a hindrance or critic.

Prepared

- People generally accept the ideas of an organized person much faster than they accept the ideas of a disorganized one. It is to your advantage to act, speak,

and think in a logical, well-planned manner. It is especially important for the trainer to be organized and familiar with the training process. Trainees recognize and appreciate when the trainer is prepared.

CONCLUSION

When on-the-job training is integrated into the culture of “doing great science” and “doing great business” it becomes an efficient and effective way to develop competent and qualified workers. This document provided an overview of the value of OJT, determining the need for OJT, and a framework for providing effective OJT.

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LBNL’s EHS Training used LANL’s guide as the starting point and made changes.

Examples of OJT forms and Checklists

Sample OJT Checklist

Student’s Name:

Date:

Trainer’s Name:

Task to be performed:	
Condition:	
Standard for performance:	
ES&H considerations:	

Oxygen in trap, Pyrophorics or toxic gases in trap, component failure, power interruption, gauge failure, installed safety devices, safety equipment, and emergency evacuation.

- c. Demonstrate competence in and an understanding of the standard operating conditions for the Schlenk Line and High Vacuum Line by performing a sample manipulation in the presence of the PI or designated trainer (supervisor/work lead).

Example OJT Form:

Trainee Name	Skills and/or information to be learned and/or demonstrated	Training completed (signoff)		
		Date	Trainee Signature	Trainer Signature
	Operate Schlenk Line			
	Operate High-Vacuum line			
	Locate and use safety devices/controls			
	Explain emergency procedures			
	Selection & Use of PPE			

Record keeping

Description of record	Custodian	Indexing Method, Storage Medium	Federal Retention Requirement*
Completed on-the-job training record	Division Responsible for delivering training	Index by trainee name, store on paper or electronically	NA