



# BERKELEY LAB Training



## Client Support Guide:

This document describes how we determine if formal learning is needed; what level of instruction or learning is needed, and what method(s) of instruction to use accordingly.

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## Introduction

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Our goal as a learning organization is to provide high impact learning that helps staff develop the capabilities to be successful contributors to the Lab's strategic objectives. This means that the learning we offer must be well architected, aligned to needs, engaging and productive, and it must produce results. Part of how we do this is to make sure that when we work with clients who are requesting formal learning that we have a research-backed, evidence-based framework to determine whether formal learning is the appropriate solution for the problem at hand, and if so to choose the level and type of instruction that will most efficiently serve the needs. This paper outlines this framework.

NOTE: This document does not explain our design methodology which is covered in our white paper "[Creating Effective Training](#)"

## 1: Defining Learning

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Our experience shows that our clients do not have a shared understanding of the terms *learning*, *training*, and *briefing*, so when we have conversations, we often need to clarify these terms so that we are working with the same understanding. The terms *training* and *learning* are often used interchangeably but at times they are differentiated. In order for us to be able to speak the same language with clients we start by defining these core terms.

**Learning:** We define learning as the act of acquiring knowledge, skills, behaviors, attitudes or understanding in something. You have learned something when you demonstrate that you can apply what you learned (knowledge and skills) in various contexts to make decisions, adapt, solve problems, or achieve goals. The extent to which you have learned, or your ability to apply what you have learned, is a measure of how skillful or competent you are.

### Informal learning

- Self-directed, without the learning being assigned to you.
- Can take place through everyday interactions such as through observations, social interactions, searching the internet for advice or answers, and experimentation.
- There are no formalized goals, objectives, assessments, or structured feedback. Any learning goals that exist are established by the learner.
- It can be adaptative in that you learn in response to challenges, changes, or new situations.

### Formal Learning

- Goal-oriented and includes learning objectives focused on developing skills and competencies and uses assessment to measure the extent to which learning has

occurred. These learning objectives generally are *not* established or controlled by the learner.

- Planned, designed, guided, and structured to develop, build specific skills, competencies and knowledge and having the learner apply what they are learning, and be assessed on the level of their learning.
- **Training** is an example of formal learning.
- May or may not be formally assigned as a requirement.

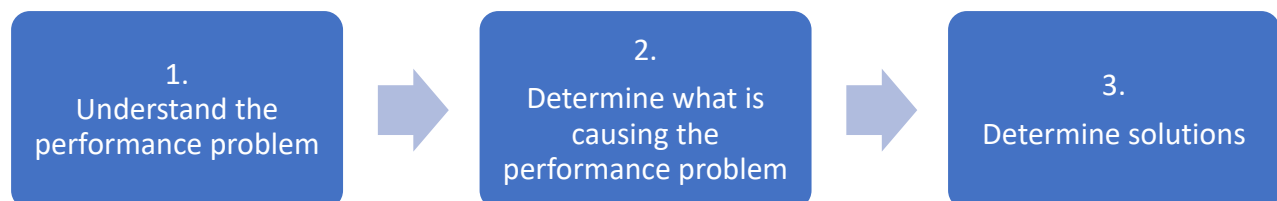
Examples of Formal Learning	Examples of Informal Learning
Structured curriculums	Reading a book, article, research paper, manual etc
Formal Training and learning modules	Watching a YouTube video
Formal instruction and education	Having someone explain something to you (show you how)
On-the-job training	Attending a briefing, presentation, meeting
Formal or structured educational programs	Using Performance support / job aids / explainers / manuals

## 2: Determining need for formal learning

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When a client proposes a new mandatory training, we direct them to the Lab’s Mandatory Training policy and onboarding request process. The following outlines the process we use to determine whether the request for formal learning is the appropriate solution to help solve the performance gap, and if so what level of learning is needed and what form of learning is the best fit? This upfront analysis is important because developing formal learning carries substantial effort and cost, so we want to have confidence that formal learning will solve or diminish the problem.







Our position is that formal learning is needed when the Lab identifies the need to provide structured, systematic instruction in order for staff to develop specific skills, knowledge, or competencies or when there is evidence of performance gap that is due (in full or in part) to a lack of skills and knowledge. How we determine this need is through a **Performance Analysis** outlined below:



**Step 1** The first step is to understand the problem, its impact and what “good performance” looks like (ideals). We want to know why the client thinks formal learning is a key ingredient in solving the performance gap. We seek the following:

1. A clear statement of the problem in actionable/observable terms, and the desired state of performance.
2. Evidentiary data that shows that the problem statement is true and extent of problem.
3. A clearly identified audience for the learning intervention.
4. Any underlying regulatory or policy requirements that necessitate the training for this audience.

**Step 2:** Once we have a clear understanding of the performance gap, we turn to investigate what is causing the gap, or what barriers impede performance. For this step we use the six boxes model and augment as needed. For example, there may also be social and environmental factors to consider. We use this method, both because it is effective, but also because it is easy for the client to understand and helps them think more broadly about performance improvement. This six boxes process of discovery is facilitated by the Learning team with the client.

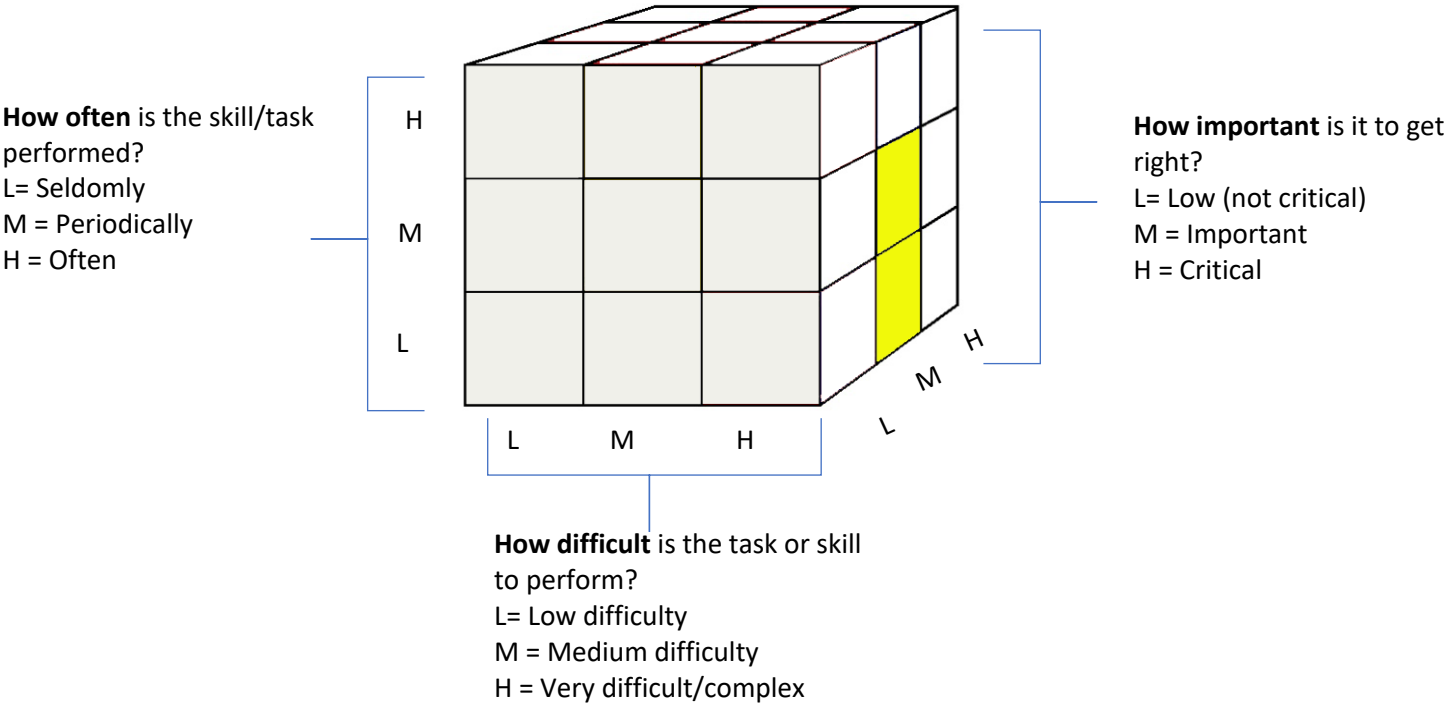
 <p><b>1: Expectations &amp; Feedback</b>  <i>Is there clear expectations for what performance should be and is there appropriate feedback in place to guide performance?</i></p>	 <p><b>2: Tools / Resources / Environment</b>  <i>Are appropriate resources and tools in place and being used to support performance. And are there environmental factors that are impacting performance?</i></p>	 <p><b>3: Consequences &amp; incentives</b>  <i>Are there aligned incentives to drive and maintain performance and are there consequences for misaligned performance?</i></p>
 <p><b>4: Skills &amp; Knowledge</b>  <i>Is the gap the result of inadequate knowledge and skills (don't know or can't do)?</i></p>	 <p><b>5: Selection &amp; Assignment</b>  <i>Is the person assigned the task or activity appropriate for the work. Have they been set up for success?</i></p>	 <p><b>6: Motives &amp; Preference</b>  <i>Are there motives or preferences that impact or get in the way of the performance?</i></p>

**Step 3:** If, at this point, we both agree that the performance gap is partly attributable to a gap in knowledge and skills, and that formal learning is part of the solution, we then have to determine what “level” of instruction is needed, explained below.

**3: Determining what level of instruction is needed**

We use the following three variables to help evaluate what level of instruction is needed. Interpreting this is a qualitative process, so we do this with the client. This thought process helps us “right-size” our effort and help the client understand that we want the most efficient form of learning according to the needs.

	<b>1: How often is it performed?</b>		<b>2: How Difficult is it to perform?</b>		<b>3: How Important is it to get right?</b>
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### Examples:








Characteristics	Instructional considerations
Not difficult	If it is not difficult, then the material can be learned independently with self-guided instruction, or perhaps with job aids or other forms of self-guided instruction, or through OJT.
Seldomly performed	If the task or skill is not performed routinely, it is unlikely the worker has developed fluency so we will want to include performance support and just-in-time resources (Job aids) to guide performance at the time of need. Training only works if the person routinely applies what they learn. Practice is essential to building fluency and skill. We don't recommend training for tasks that are performed seldomly because learners will likely forget what they learned in class before they have an opportunity to reinforce it by performing the task in their jobs.
Simple but important	If the task is simple but it is important to get it right (high consequence) it may be possible to provide guided self-paced instruction that incorporates the use of job aids, and we would include structured practice with feedback. We also would want to build-in formal assessment to validate performance/validate learning.
Complex/Difficult	Complex or difficult skills or tasks benefit from a well-designed curriculum that offers practice, resources, guided instruction, and effective assessment. Ideally there is time for reflection and skills are learned over time to leverage spaced learning benefits.

From here we think through which forms of instruction or modes of instruction will most efficiently achieve the learning outcomes. The following is a source we use when having conversations with clients for how we choose the type of learning to employ. Understand that there may be multiple modes or types used within a curriculum, so the following is intended to characterize their strengths and weaknesses for the purpose of conversation.







#### 4: Determining what method(s) of instruction to employ









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Once we determine what level of instruction is needed, we need to decide what mode or methods of instruction to employ. There are several common methods or modes available, including traditional classroom instruction, live online instruction (Zoom), self-paced e-learning, on-the-job training (OJT), and more. Choosing the right delivery mode requires finding the right balance according to the learning objectives. The following section describes some strengths and weaknesses of the most common instructional delivery modes.

 <b>e-learning</b>	
	<p><b>A good choice</b> when developing and assessing cognitive skills and for situations when the audience is large, and you want consistency in the approach to learning and learning assessment. It may also be the best solution when analysis shows that <b>Instructor-led</b> training is the best choice, but no skilled instructor is available to teach the class. E-learning is suited to:</p> <ul style="list-style-type: none"> <li>• Learning, practicing, and assessing decision-making skills.</li> <li>• Practicing procedures, and drilling on concepts in the context for how they are applied or used in work.</li> <li>• Simulating medium-complex scenarios that emulate work tasks/decisions.</li> <li>• Presenting “real world” problems and decisions and providing feedback</li> <li>• Providing individualized and scaffolded instruction (separate learning paths)</li> </ul>
	<p><b>Not a good choice</b> if the audience is small, when there is an important physical skill involved, or when social aspects of learning are needed. It is also not a good choice if the objectives are below the <b>Applying</b> level on Bloom's taxonomy because these can be met with less-costly interventions such as presentations, job aids, tailgates, briefings etc.</p>
	<p>e-learning can also be used as part of a blended curriculum where e-learning is combined with performance support job aids or works in partnership with instructor-led curriculums.</p>
 <b>Instructor-led</b>	
	<p><b>A good choice</b> when learning outcomes benefit from discussion, instructor modeling, group activities, physical performance, practice, questioning, team problem solving, social and interpersonal skills, and role play.</p> <p>EXAMPLES:</p> <ul style="list-style-type: none"> <li>• Teaching by modeling how to do something, and explaining associated thinking before having students practice and perform.</li> <li>• Facilitating group discussion and group activities that emphasize practicing and applying learning.</li> <li>• Facilitating learning through Socratic questioning, group activities, reflections, and work-related problem solving that benefits from discussion, and participation.</li> <li>• Role play learning, and other performance-oriented instruction where students work together and assess each other's performance.</li> <li>• Learning physical skills in a mock setting when the classroom or learning environment allows for scenario and real-world learning contexts.</li> </ul>
	<p>Not a good choice when:</p> <ul style="list-style-type: none"> <li>• The focus is on lecturing and presenting information as this can be done using communication/presentations using e-format.</li> <li>• Training needs to be available more often than instructor is available.</li> <li>• The objectives are below the application level (recall/understand) where learning can be achieved without instructor.</li> <li>• A skilled instructor is not available to teach the class</li> <li>• The skills taught in class will not be used frequently by those who take the class</li> </ul>



	<p><b>Video Instruction</b></p> <p> <b>A good choice</b> when learning how to perform a process that benefits from visual demonstration. This includes walking or stepping through a process while explaining the benefits and reasons for why something is performed this way. It can include modeling techniques or procedural applications.</p> <p>EXAMPLES:</p> <ul style="list-style-type: none"> <li>● Learning how to use or repair a piece of equipment.</li> <li>● Learning how to perform a calculation or use software.</li> <li>● Learning interpersonal skills such as how to provide feedback.</li> <li>● Learning how to serve as an active bystander in different situations.</li> </ul> <p>NOTE: It's important to understand that watching a video does not mean that you have learned. Watching a video is the first step; it needs to be closely followed by practicing the skill. In some cases, the video serves as a reference.</p>
	<p>Not a good choice if it is used for talking heads such as lecture formats</p>
	<p>Video is most useful when you already have developed similar or transferable skills. For example, a person can already use a nonlinear video editing tool and is learning to use a different video editing tool and uses video instruction. IT is also useful as a component of a larger instructional unit or course where video is used to model something or to show a situation that is then discussed or pulled apart.</p> <p>When video is most successful as an instructional media, it is because the person watching the video is simultaneously attempting to perform the task that the video is demonstrating. In this mode, the video straddles the line between instruction and performance support.</p>
	<p><b>On-the-job Training</b></p>
	<p><b>A good choice</b> when you need to teach job, or task-specific skills and you need to validate proficiency. It allows for both cognitive and physical skill development and is efficient and effective because all of the learning is job specific and immediately transfers into practice (Near transfer)</p> <p>All other forms of instruction require that the learner transfer what they learn from one setting to the other (classroom to work location) or (e-learning scenario to actual work tasks) and the more dis-similar the contexts the more friction in transferability.</p> <p>OJT is also a good fit for subject areas that encompass a wide variety of possible implementations. For example, “working safely with hazardous chemicals.” There are certain general principles that apply to working with any hazardous chemical, but also, there are huge variety of different chemicals, each with different hazards, and those</p>

	<p>hazards may be different depending on how someone uses the chemicals. In such cases, formal training is necessarily very general, and following it with OJT that is very specific helps clarify how the general principles apply to the specific work the student must actually perform. OJT in these situations also provides the opportunity to cover special hazards that may not apply widely but do apply to the person’s specific work.</p>
	<p>Not a good choice when what is being taught is not going to be used frequently enough for the person to retain it. This is true for all learning and follows the logic of the forgetting curve, but especially with mentioning in this context because OJT is primarily positioned to help someone become proficient with the work they are assigned.</p>
	<p>NOTE: The quality of the OJT is an important factor as it is to all of these modes of learning. It’s especially important here when the consequence of poor performance is high such as in safety-related OJT. In these situations, we recommend the three-part OJT process highlighted at <a href="https://training.lbl.gov/OJT/">https://training.lbl.gov/OJT/</a></p>
 <b>Practical’s (performance Assessment)</b>	
	<p>A practical is not teaching or learning but is added to this matrix because it is used to measure the extent to which the learner can apply what they’ve learned.</p> <p>It is good for situations where:</p> <ul style="list-style-type: none"> <li>• There is a risk to safety or operations if skill is not performed correctly.</li> <li>• When you want assurance that the person is capable of performing tasks</li> </ul> <p>A driver’s test is an example of a practical skills assessment. Practicals are also used in electrical safety, radiological work, crane operation and forklift use.</p>
	<p>Not a good choice when there is low risk from error and therefore the assessment is not needed in this formal manner. The cost is high as it requires one-on-one assessment, a place to exercise the skills (mock or real work environment) and that the assessor be trained in facilitating a practical.</p>
 <b>Job aids and Performance Support</b>	
	<p><b>A good choice</b> for the following situations:</p> <ul style="list-style-type: none"> <li>• Work that involves multi-step procedures when risk of omitting a step or performing steps out of sequence results in safety or operational risk</li> <li>• Useful for procedures that have a high degree of monotony or repetitive steps that need to be done a set number of times.</li> <li>• Useful for situations where the task is not performed often enough to develop fluency (don’t want to rely on recall)</li> </ul> <p>Ideally the job aid, procedure, or check-sheet is used in the instructional setting so that it is practiced, and so that the learner understands the use and value of the resource. Important to clarify that the goal is not to remember all steps but instead to be able to perform the steps with the job aid.</p>
	<p>Not often used as a primary instructional tool unless the task is easy to perform and carries low risk.</p>

	<p>The quality of the job aid is important because if it is not accessible and user friendly and overly detailed that will serve as a barrier to use.</p> <p>Job aids are not a good fit when performing the task safely requires fast decision-making because when decisions are tightly time-bound, the person performing the task does not have time to consult a job aid. For these situations, people must learn how to perform the task to a high degree of fluency. You don't want your ER doctor to have to stop and read a job aid in the middle of an emergency!</p>
 <b>Read and Sign</b>	
	<p><b>A good choice when</b> the objective is to simply inform, and have staff acknowledge having read and understood the material presented. Commonly used in the form of an agreement.</p> <p>Useful when:</p> <ul style="list-style-type: none"> <li>● There is a change in a requirement or a change in a procedure and you want to record that staff understand the change and its implications. <ul style="list-style-type: none"> <li>○ Important that the person already uses and understands the procedure or requirement that has undergone change.</li> </ul> </li> <li>● You want to communicate role responsibilities and have staff agree that they understand and will abide/follow.</li> <li>● There is no actual performance problem, but regulations require people to be trained anyway.</li> </ul>
	<p><b>Not a good choice</b> when the objective is to learn something new, or further develop an existing skill. The goal of a read and sign is not to teach it is to communicate something that builds on existing knowledge/understanding.</p> <p>Do not use to teach a skill, rule, or concept that requires worked examples, or modeling, or practice and an assessment of knowledge or skill.</p>

## Summary

Formal learning plays a vital role in our organization because it helps staff develop the capabilities needed to successfully contribute the Lab's strategic goals. However, it is vital that we ensure that formal learning is fit-to-needs and that we consider the full spectrum of performance solutions when clients reach out to us for support. This paper outlined our process for determining whether formal learning is an appropriate intervention, and if so what level of learning and method of learning is most useful. Because there is such a high volume of Mandatory Training at the Lab it is vital that we apply due diligence when evaluating the need for formal learning. The learning and training industry, as a whole, would benefit if it moved from "order takers" to performance consultants, and that is what we strive to do.